NEW LEADER

# MODEL L5034G4

**UNIT SERIAL NUMBER _____**

**MANUAL NUMBER: 305438-G**

**EFFECTIVE 03/2016**

Hi-Way NEW LEADER
Highway Equipment Company
*Building the best since 1939.*

**1330 76TH AVE SW**
**CEDAR RAPIDS, IA 52404-7052**
**PHONE (319) 363-8281 | FAX (319) 286-3350**
***www.highwayequipment.com***

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# Insert Current New Leader Warranty

# PLEASE ! ALWAYS THINK SAFETY FIRST !!

The purpose of this manual is to familiarize the person (or persons) using this unit with the information necessary to properly install, operate, and maintain this system. The safety instructions indicated by the safety alert symbol in the following pages supersede the general safety rules. These instructions cannot replace the following: the fundamental knowledge that must be possessed by the installer or operator, the knowledge of a qualified person, or the clear thinking necessary to install and operate this equipment. Since the life of any machine depends largely upon the care it is given, we suggest that this manual be read thoroughly and referred to frequently. If for any reason you do not understand the instructions, please call your authorized dealer or our Product Sales and Support Department at 1-888-363-8006.

It has been our experience that by following these installation instructions, and by observing the operation of the spreader, you will have sufficient understanding of the machine enabling you to troubleshoot and correct all normal problems that you may encounter. Again, we urge you to call your authorized dealer or our Product Sales and Support Department if you find the unit is not operating properly, or if you are having trouble with repairs, installation, or removal of this unit.

We urge you to protect your investment by using genuine HECO parts and our authorized dealers for all work other than routine care and adjustments.

Highway Equipment Company reserves the right to make alterations or modifications to this equipment at any time. The manufacturer shall not be obligated to make such changes to machines already in the field.

This Safety Section should be read thoroughly and referred to frequently.

ACCIDENTS HURT !!!

ACCIDENTS COST !!!

ACCIDENTS CAN BE AVOIDED !!!

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THAT OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

In this manual and on the safety signs placed on the unit, the words "DANGER," "WARNING," "CAUTION," and "NOTICE" are used to indicate the following:

| | |
|---|---|
| **DANGER** | Indicates an imminently hazardous situation that, if not avoided, WILL result in death or serious injury. This signal word is to be limited to the most extreme situations and typically for machine components that, for functional purposes, cannot be guarded. |
| **WARNING** | Indicates a potentially hazardous situation that, if not avoided, COULD result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices. |
| **CAUTION** | Indicates a potentially hazardous situation that, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices. |
| **NOTICE!** | Is used for informational purposes in areas which may involve damage or deterioration to equipment but generally would not involve the potential for personal injury. |
| NOTE: | Provides additional information to simplify a procedure or clarify a process. |

The need for safety cannot be stressed strongly enough in this manual. At Highway Equipment Company, we urge you to make safety your top priority when operating any equipment. We firmly advise that anyone allowed to operate this machine be thoroughly trained and tested, to prove they understand the fundamentals of safe operation.

The following guidelines are intended to cover general usage and to assist you in avoiding accidents. There will be times when you will run into situations that are not covered in this section. At those times the best standard to use is common sense. If, at any time, you have a question concerning these guidelines, please call your authorized dealer or our Product Sales & Support Department at (888) 363-8006.

## SAFETY DECAL MAINTENANCE INSTRUCTIONS

1. Keep safety decals and signs clean and legible at all times.

2. Replace safety decals and signs that are missing or have become illegible.

3. Replaced parts that displayed a safety sign should also display the current sign.

4. Safety decals or signs are available from your dealer's Parts Department or our Cedar Rapids factory.

## SAFETY DECAL INSTALLATION INSTRUCTIONS

1. Clean Surface
   Wash the installation surface with a synthetic, free-rinsing detergent. Avoid washing the surface with a soap containing creams or lotion. Allow to dry.

2. Position Safety Decal
   Decide on the exact position before application. Application marks may be made on the top or side edge of the substrate with a lead pencil, marking pen, or small pieces of masking tape. NOTE: Do not use chalk line, china marker, or grease pencil. Safety decals will not adhere to these.

3. Remove the Liner
   A small bend at the corner or edge will cause the liner to separate from the decal. Pull the liner away in a continuous motion at a 180-degree angle. If the liner is scored, bend at score and remove.

4. Apply Safety Decal
   a. Tack decal in place with thumb pressure in upper corners.
   b. Using firm initial squeegee pressure, begin at the center of the decal and work outward in all directions with overlapping strokes. NOTE: Keep squeegee blade even—nicked edges will leave application bubbles.
   c. Pull up tack points before squeegeeing over them to avoid wrinkles.

5. Remove Pre-mask
   If safety decal has a pre-mask cover remove it at this time by pulling it away from the decal at a 180 degree angle. NOTE: It is important that the pre-mask covering is removed before the decal is exposed to sunlight to avoid the pre-mask from permanently adhering to the decal.

6. Remove Air Pockets
   Inspect the decal in the flat areas for bubbles. To eliminate the bubbles, puncture the decal at one end of the bubble with a pin (never a razor blade) and press out entrapped air with thumb moving toward the puncture.

7. Re-Squeegee All Edges.

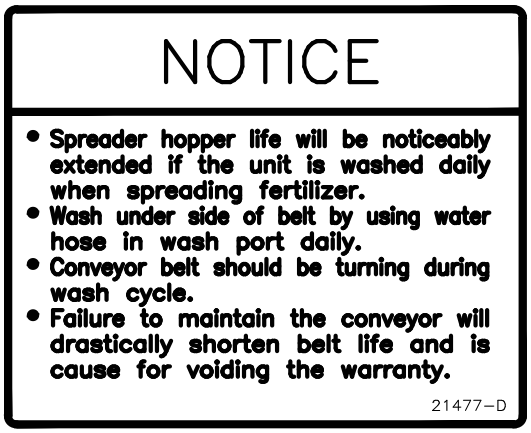

DANGER
MOVING PART HAZARD
To prevent death or serious injury:
• Stay out of box while conveyor is moving.
• Disconnect and lockout power source before adjusting or servicing.
• Do not ride on spreader.
364-C


DANGER
FLYING MATERIAL & ROTATING SPINNER HAZARD
To prevent death or serious injury:
• Wear eye protection.
• Stop machine before servicing or adjusting.
• Keep bystanders at least 60 feet away.


WARNING
HIGH PRESSURE FLUID HAZARD
To prevent death or serious injury:
• Relieve pressure on system before repairing, adjusting, or disconnecting.
• Keep all lines, fittings and couplers tight and free of leaks.
• Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
• Do not use hydraulic lines for hand holds or steps.
• Components may be hot.


WARNING
FALLING HAZARD
To prevent death, serious injury or machine damage:
• Do not stand or climb on guard.
55630-D


WARNING
MOVING PART HAZARD
To prevent death or serious injury:
• Close and secure guards before starting.
• Do not stand or climb on machine.
• Disconnect and lockout power source before adjusting or servicing.
• Keep hands, feet and hair away from moving parts.
55631-C


NOTICE
• Spreader hopper life will be noticeably extended if the unit is washed daily when spreading fertilizer.
• Wash under side of belt by using water hose in wash port daily.
• Conveyor belt should be turning during wash cycle.
• Failure to maintain the conveyor will drastically shorten belt life and is cause for voiding the warranty.
21477-D

## NOTICE

Spinner assembly and material flow divider have NOT been adjusted at the factory. Before assembling unit, read and follow assembly instructions in the operation and maintenance manual for this unit.

Before spreading material, spread pattern tests must be conducted to properly adjust the spread pattern. Refer to the "How to Check Your Spread Pattern" manual for adjustment instructions. A spread pattern test kit is available from your New Leader dealer.

Wind, humidity, rain and other adverse weather conditions can affect spread pattern, resulting in uneven crop growth and loss of yield.

THE MANUFACTURER OF THIS SPREADER WILL NOT BE LIABLE FOR MISAPPLIED MATERIAL DUE TO AN IMPROPERLY ADJUSTED SPREADER OR ADVERSE WEATHER CONDITIONS.

It is recommended that spread pattern tests be conducted prior to each spreading season, after any spreader maintenance, and periodically during the spreading season. Spread pattern tests must be conducted whenever a new product is to be applied.

71526-F

## NOTICE

- **Conveyor chain life will be noticeably extended by periodic lubrication.**
- **Use a 75% diesel fuel and 25% number 10 oil mixture on the links and rollers.**
- **Failure to keep the chain links loose and free running can result in severe damage to the conveyor chain, drag shaft, gear case, body structure, and is cause for voiding the warranty.**

21476-E

## CAUTION

TO AVOID INJURY OR MACHINE DAMAGE:

- Do not operate or work on this machine without reading and understanding the operators manual.
- Keep hands, feet, hair and clothing away from moving parts.
- Do not allow riders on machine.
- Avoid unsafe operation or maintenance.
- Disengage power takeoff and shut off engine before removing guards, servicing or unclogging machine.
- Keep unauthorized people away from machine.
- Keep all guards in place when machine is in use.
- If manual is missing, contact dealer for replacement.

150034-C

## CAUTION

HAZARDOUS MATERIALS

To avoid injury or machine damage:

- Materials to be spread can be dangerous.
- Improper selection, application, use or handling may be a hazard to persons, animals, crops or other property.
- Follow instructions and precautions given by the material manufacturer.

321-C

## DANGER

GUARD IS MISSING WHEN THIS IS VISIBLE

To prevent death or serious injury:

- Do not operate this unit without guard in place. 308151-A

## NO STEP

39017-D

# GENERAL SAFETY RULES-OPERATIONS



1. Before attempting to operate this unit, read and be sure you understand the operation and maintenance manual. Locate all controls and determine the use of each. Know what you are doing!


2. When leaving the unit unattended for any reason, be sure to:
   a. Take power take-off out of gear.
   b. Shut off conveyor and spinner drives.
   c. Shut off vehicle engine and unit engine (if so equipped).
   d. Place transmission of the vehicle in "neutral" or "park".
   e. Set parking brake firmly.
   f. Lock ignition and take keys with you.
   g. Lock vehicle cab.
   h. If on steep grade, block wheels.

   These actions are recommended to avoid unauthorized use, runaway, vandalism, theft and unexpected operation during start-up.

3. Do not read, eat, talk on a mobile phone or take your attention away while operating the unit. Operating is a full-time job.

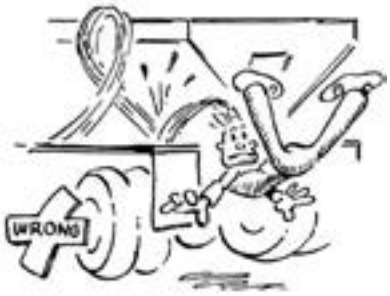
4. Stay out of the spreader. If it's necessary to enter the spreader, return to the shop, empty body, turn off all power, set vehicle brakes, lock engine starting switch and remove keys before entering. Tag all controls to prohibit operation. Tags should be placed, and later removed, only by person working in the body.


5. Guards and covers are provided to help avoid injury. Stop all machinery before removing them. Replace guards and covers before starting spreader operation.

6. Stay clear of any moving members, such as shafts, couplings and universal joints. Make adjustments in small steps, shutting down all motions for each adjustment.


7. Before starting unit, be sure everyone is clear and out of the way.

8. Do not climb on unit. Use the inspection ladder or a portable ladder to view the unit. Be careful in getting on and off the ladder, especially in wet, icy, snowy or muddy conditions. Clean mud, snow or ice from steps and footwear.





9. Do not allow anyone to ride on any part of unit for any reason.


10. Keep away from spinners while they are turning:
    a. Serious injury can occur if spinners touch you.
    b. Rocks, scrap metal or other material can be thrown off the spinner violently. Stay out of discharge area.
    c. Make sure discharge area is clear before spreading.

11. Inspect spinner fins, spinner frame mounting and spinner fin nuts and screws every day. Look for missing fasteners, looseness, wear and cracks. Replace immediately if required. Use only new SAE grade 5 or grade 8 screws and new self-locking nuts.

12. Inspect all bolts, screws, fasteners, keys, chain drives, body mountings and other attachments periodically. Replace any missing or damaged parts with proper specification items. Tighten all bolts, nuts and screws to specified torques according to the torque chart in this manual.


13. Shut off engine before filling fuel and oil tanks. Do not allow overflow. Wipe up all spills. Do not smoke. Stay away from open flame. FIRE HAZARD!


14. Starting fluids and sprays are extremely flammable. Don't smoke. Stay away from flame or heat!


15. All vehicles should be equipped with a serviceable fire extinguisher of 5 BC rating or larger.

16. Hydraulic system and oil can get hot enough to cause burns. DO NOT work on system that is hot. Wait until oil has cooled. If an accident occurs, seek immediate medical assistance.


17. Wear eye protection while working around or on unit.
18. Read, understand and follow instructions and precautions given by the manufacturer or supplier of materials to be spread. Improper selection, application, use or handling may be hazardous to people, animals, plants, crops or other property.

**CAUTION** If spreader is used to transport chemicals, check with your chemical supplier regarding DOT (Department of Transportation) requirements.

19. Cover all loads that can spill or blow away. Do not spread dusty materials where dust may create pollution or a traffic visibility problem.



20. Turn slowly and be careful when traveling on rough surfaces and side slopes, especially with a loaded spreader. Load may shift causing unit to tip.

21. Read and understand the precautionary decals on the spreader. Replace any that become defaced, damaged, lost or painted over. Replacement decals can be ordered from your dealer's parts department or from Highway Equipment Company by calling (319) 363-8281.

SAFETY

# GENERAL SAFETY RULES-MAINTENANCE



1. Maintenance includes all lubrication, inspection, adjustments (other than operational control adjustments such as feedgate openings, conveyor speed, etc.) part replacement, repairs and such upkeep tasks as cleaning and painting.


2. When performing any maintenance work, wear proper protective equipment—always wear eye protection—safety shoes can help save your toes—gloves will help protect your hands against cuts, bruises, abrasions and from minor burns—a hard hat is better than a sore head!

3. Use proper tools for the job required. Use of improper tools (such as a screwdriver instead of a pry bar, a pair of pliers instead of a wrench, a wrench instead of a hammer) not only can damage the equipment being worked on, but can lead to serious injuries. USE THE PROPER TOOLS.

4. Before attempting any maintenance work (including lubrication), shut off power completely. DO NOT WORK ON RUNNING MACHINERY!

5. When guards and covers are removed for any maintenance, be sure that such guards are reinstalled before unit is put back into operation.

6. Check all screws, bolts and nuts for proper torques before placing equipment back in service. Refer to torque chart in this manual.

7. Some parts and assemblies are quite heavy. Before attempting to unfasten any heavy part or assembly, arrange to support it by means of a hoist, by blocking or by use of an adequate arrangement to prevent it from falling, tipping, swinging or moving in any manner which may damage it or injure someone. Always use lifting device that is properly rated to lift the equipment. Do not lift loaded spreader. NEVER LIFT EQUIPMENT OVER PEOPLE.


8. If repairs require use of a torch or electric welder, be sure that all flammable and combustible materials are removed. Fuel or oil reservoirs must be emptied, steam cleaned and filled with water before attempting to cut or weld them. DO NOT weld or flame cut on any tank containing oil, gasoline or their fumes or other flammable material, or any container whose contents or previous contents are unknown.


9. Keep a fully charged fire extinguisher readily available at all times. It should be a Type ABC or a Type BC unit.

10. Cleaning solvents should be used with care. Petroleum based solvents are flammable and present a fire hazard. Don't use gasoline. All solvents must be used with adequate ventilation, as their vapors should not be inhaled.

11. When batteries are being charged or discharged, they generate hydrogen and oxygen gases. This combination of gases is highly explosive. DO NOT SMOKE around batteries—STAY AWAY FROM FLAME—don't check batteries by shorting terminals as the spark could cause an explosion. Connect and disconnect battery charger leads only when charger is "off". Be very careful with "jumper" cables.


12. Batteries contain strong sulfuric acid—handle with care. If acid gets on you, flush it off with large amounts of water. If it gets in your eyes, flush it out with plenty of water immediately and get medical help.

13. Hydraulic fluid under high pressure leaking from a pin hole are dangerous as they can penetrate the skin as though injected with a hypodermic needle. Such liquids have a poisonous effect and can cause serious wounds. To avoid hazard, relieve pressure before disconnecting hydraulic lines or performing work on system. Any fluid injected into the skin must be treated within a few hours as gangrene may result. Get medical assistance immediately if such a wound occurs. To check for such leaks, use a piece of cardboard or wood instead of your hand. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to system. Wear protective gloves and safety glasses or goggles when working with hydraulic systems.


14. The fine spray from a small hydraulic oil leak can be highly explosive—DO NOT SMOKE—STAY AWAY FROM FLAME OR SPARKS.

SAFETY

# GENERAL SAFETY RULES-INSTALLATION



1. The selection of the vehicle on which a spreader body is to be mounted has important safety aspects. To avoid overloading:
   a. Do not mount spreader on a chassis which, when fully loaded with material to be spread, will exceed either the Gross Axle Weight Rating (GAWR) or the Gross Vehicle Weight Rating (GVWR) for the chassis.
   b. Do install the spreader only on a vehicle with cab-to-axle dimension recommended for the spreader body length shown.

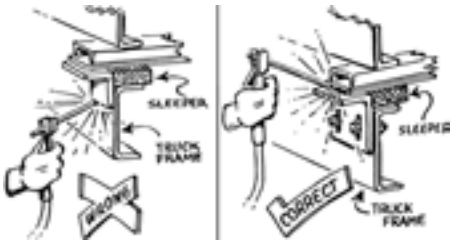

2. Follow mounting instructions in the Installation section of this manual. If mounting conditions require deviation from these instructions refer to factory.

3. When making the installation, be sure that the lighting meets Federal Motor Vehicle Safety Standard (FMVSS) No. 108, ASABE S279 and all applicable local and state regulations.

4. When selecting a PTO to drive hydraulic pump, do not use a higher percent speed drive than indicated in the Installation section of this manual. Too high a percent PTO will drive pump at excessive speed, which can ruin the pump, but more importantly, will overheat the hydraulic oil system and increase the possibility of fire.

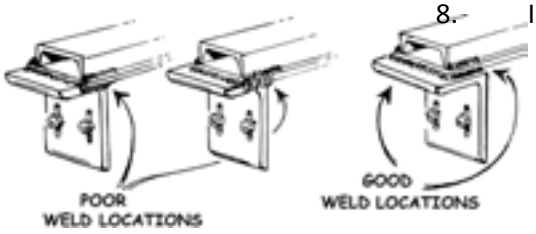

5. When truck frame must be shortened, cut off only the portion that extends behind rear shackle in accordance with the truck manufacturer's recommendations. If a torch is used to make the cut, all necessary precautions should be taken to prevent fire. Cuts should not be made near fuel tanks and hydraulic oil reservoirs, fuel, brake, electric or hydraulic lines and such lines should be protected from flame, sparks or molten metal. Tires should be removed if there is any chance of their being struck by flame, sparks or molten metal. Have a fire extinguisher handy.

6. Do not weld on vehicle frame as such welding can lead to fatigue cracking and must be avoided. When drilling holes in frame member, drill only through the vertical web portions do not put holes in top or bottom flanges. Refer to truck manufacturer's recommendations.




7. Be sure that welds between mounting bars and sill or between mounting angles and spreader cross sills are sound, full fillet welds. Center mounting angles so that good fillet welds can be made on three sides—and edge bead weld is not a satisfactory weld for this service. Use 309 rod/wire for carbon steel and 409 steel. On 304 stainless steel bodies use SAE grade 5 bolts—welding is recommended if type 308 welding rod is available.

8. Install controls so that they are located of convenient use. Position them so that they do not interfere with any vehicle control and that they do not interfere with driver or passenger or with access to or exit from the vehicle.




9. Check for vehicle visibility, especially toward the rear. Reposition or add mirrors so that adequate rearward visibility is maintained.

10. Add Caution, Warning, Danger and Instruction decals as required. Peel off any label masking which has not been removed.

11. Install all guards as required.

12. Check installation completely to be sure all fasteners are secure and that nothing has been left undone.

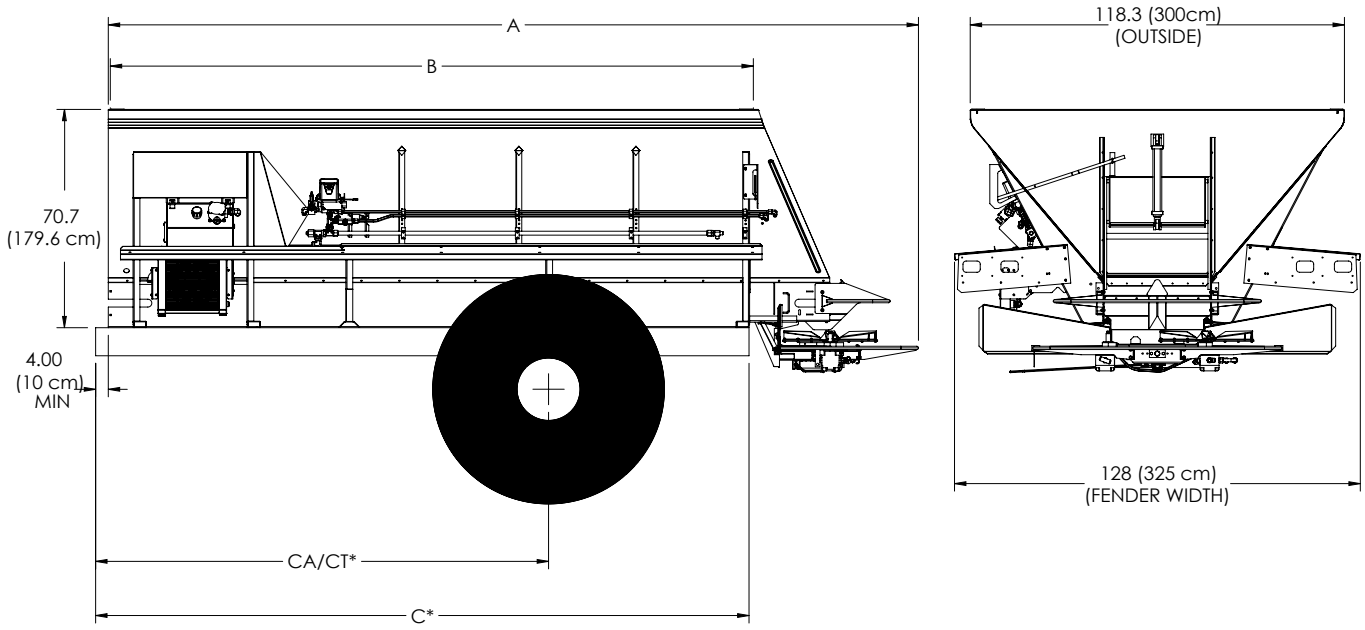
The Model L5034G4 is a hopper type spreader intended for spreading feedlot manure, waste water sludge, industrial waste, paper mill waste, compost, marl, poultry litter and fly ash. It is intended for truck chassis or flotation vehicle mounting.

The unit is powered hydraulically and provides independent variable speed control for the spinner and full automatic ground speed control for the conveyor by means of a motorized valve with shaft sensor. Tandem gear type hydraulic pumps provide the power and are driven by means of a transmission PTO.

The 34" wide (86 cm) conveyor runs the full length of the hopper bottom to deliver material to the spinners through a hydraulically adjustable metering gate at the rear of the hopper body. A feedgate sight gauge allows monitoring of the feedgate opening from the cab. The conveyor is driven by two orbital type hydraulic motors mounted to 6-to-1 ratio spur gear cases. Three conveyor options are available: pintle type chain joined by cross bars every third link (#1), every other link (#2), or every link (#3)

The distributor spinner assembly has two 30" (76cm) diameter discs. Each disc has the option of four or six formed and heat treated fins that are adjustable to radial angle. The spinner is fully adjustable by means of a rotating handle.

This product is intended for commercial use only.




| Unit Length | Overall Lenth<br>A | Body Length<br>B | Frame Length<br>C | Cab to Axle or Cab to Tandem<br>CA/CT |
|---|---|---|---|---|
| 13’ | 196” (498 cm) | 144” (366 cm) | 147” (373 cm) | 108” (274cm) CA |
| 14’ | 208” (528 cm) | 156” (396 cm) | 159” (404 cm) | 114” (290cm) CA |
| 16’ | 232” (589 cm) | 180” (457 cm) | 183” (465 cm) | 138” (351cm) CA/<br>120” (305cm) CT |
| 18’ | 256” (650 cm) | 204” (518 cm) | 207” (526 cm) | 153” (389cm) CA/<br>144” (366cm) CT |
| 21’ | 292” (742 cm) | 240” (610 cm) | 243”(617 cm) | 188” (478cm) CA/<br>162” (411cm) CT |

| Unit Length | Struck Capacity<br>Cu Yd (Cu M) Cu Ft | Spreader Weight<br>Approx. Pounds (kilograms)As Shipped |
|---|---|---|
| 13’ (3.96 m) | 13.4 (10.2) 361 | 5200 (2359) |
| 14’ (4.27 m) | 14.5 (11.1) 392 | 5600 (2540) |
| 16’ (4.88 m) | 16.8 (12.8) 453 | 6400 (2903) |
| 18’ (5.49 m) | 19.0 (14.5) 515 | 7200 (3266) |
| 21’ (6.40 m) | 22.5 (17.2) 608 | 8400 (3810) |

**Refer to www.highwayequipment.com for installation instructions.**

**NOTE:**
**Once on the website:**
- **Click Customer Support**
- **Select: Other New Leader Manuals and Instructions**
- **Select: *New Leader Installation Instructions.***

**WARNING** Stand clear of moving machinery.

NOTE: Do not load spreader with material.

1. Check entire unit to make sure all fasteners are in place and properly tightened per Standard Torques National Coarse (NC) Cap Screws section in this manual.
2. Make sure no other persons are in vicinity of truck or spreader.
3. Make sure no loose parts are in unit or on conveyor or spinner.
4. Open feedgate until it is completely clear of conveyor.
5. Check oil level in hydraulic reservoir; fill as necessary. Refer to Lubricant Specification section of this manual for proper oil. Completely open gate valve under reservoir.
6. Set throttle so engine runs at about 1000 RPM. Engage PTO driving pump. Allow pump to run and circulate oil for several minutes. Increase warm-up time in cold weather.
7. PWM spinner control valve: Run at 250 RPM.
   Spinner should run at slow speed. Allow to run until it is operating smoothly and all air has been purged.
8. PWM spinner control valve: Run at 0 RPM.
9. Place controller in manual mode (see control manufacturer's manual) and run conveyor until it's operating smoothly.
10. PWM spinner control valve: Run at 400 RPM.
    Allow both spinner and conveyor to run. Shut down system.

**WARNING** Do not use one manufacturer's hose with another manufacturer's fittings! Such will void any warranty and may cause premature burst or leak of hydraulic fluids! Severe injury and/or fire could result!

**WARNING** DO NOT check leaks with hands while system is operating as high pressure oil leaks can be dangerous! If skin is pierced with hydraulic fluid at high pressure seek immediate medical attention as fluid injected into the skin could cause gangrene if left untreated. Relieve pressure before disconnecting hydraulic lines or working system. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system. Wear protective gloves and safety glasses or goggles when working with hydraulic systems.

**WARNING** DO NOT check for hydraulic leaks adjacent to moving parts while system is operating as there may be danger of entanglement!

11. Check all connections in hydraulic system to make sure there are no leaks.
12. Check hydraulic oil reservoir and refill to maintain level around mid-point of sight gauge.
    Unit is now ready for field testing.

The following procedure is a guide:

1. Field test over any suitable course which allows vehicle to be driven at speeds to be used while spreading.
2. Make sure unit has been properly serviced, that oil reservoir is full and gate valve under reservoir is fully open. Do not load spreader.
3. Manual spinner control valve: Set to position “5”.
   PWM spinner control valve: Run at 550 RPM.

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|---|---|
| **DANGER** | Take proper safety precautions when observing conveyor and spinner speed while vehicle is in motion! These may include use of suitable mirrors clamped to permit observation by a safely seated observer, following the spreader in another vehicle at a safe distance, or other suitable means. Do not stand on fenders, in body or on any part of spreader as there is danger of falling off the vehicle or into moving parts! Use great care in performing this test! |

4. Start truck engine. Turn control to ‘’on’’ position. Engage PTO and allow to run at fast idle long enough to bring hydraulic oil up to operating temperature. Spinners should revolve at moderate speed and the conveyor should not move.
5. Set program in control console to operational mode and begin forward travel. Move conveyor switch on console to ‘’on’’ position. Conveyor should start immediately when vehicle moves and should continue to run at speeds which vary directly with the vehicles field speed; the conveyor should speed up as truck speed increases and slow down as truck speed reduces. Spinner speed should remain constant when engine speed is above minimum operating range.

1. Make sure unit has been properly serviced and is in good operating condition. Field test unit prior to first use, prior to each spreading season's use, and following overhaul or repair work, to verify that all components and systems are functioning properly. See Field Testing section.
2. Fill body with material to be spread.
3. Drive to location where spreading is to be done.
4. Adjust spinner control valve for material being applied to give spread width desired. See *G4 Spread Pattern* section.
5. Adjust spinner to give spread pattern desired. See *G4 Spread Pattern* section.
6. Set feedgate opening to obtain the yield desired. Measure actual material depth.
7. Make sure shut-off valve on hydraulic reservoir is fully opened.
8. Turn on power to controller and set program to desired values.
9. Engage pump drive PTO.

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|---|---|
| **CAUTION** | Drive only at speeds which permit good control of vehicle! |

10. Drive at speeds that allow engine to run at proper RPM.

    Higher transmission gears may be used with speeds to 30 MPH (48 KMPH). If lower speeds must be used, shift transmission into lower gears so engine speed can be maintained to allow adequate hydraulic oil delivery from pump.

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| **NOTICE!** | CHANGE THE HYDRAULIC OIL FILTER AFTER THE FIRST WEEK (OR NOT MORE THAN 50 HOURS) OF OPERATION ON A UNIT. |

## PREVENTATIVE MAINTENANCE PAYS!

The handling and spreading of commercial fertilizers is a most severe operation with respect to metal corrosion. Establish a frequent, periodic preventative maintenance program to prevent rapid damage to spreading equipment. Proper cleaning, lubrication and maintenance will give you longer life, more satisfactory service and more economical use of your equipment.

| | |
|---|---|
| **WARNING** | Shut off all power and allow all moving parts to come to rest before performing any maintenance operation. |

## HYDRAULIC SYSTEM

Proper oil in the hydraulic system is one of the most important factors for satisfactory operation. Utmost cleanliness in handling the oil cannot be stressed enough. Keep hydraulic oil in original closed containers, clean top of container before opening and pouring, and handle in extremely clean measures and funnels.

Refer to Lubricant and Hydraulic Oil Specifications section for selection of the proper hydraulic fluid for use in the hydraulic system.

## SERVICE SCHEDULE

| | |
|---|---|
| **WARNING** | DO NOT check leaks with hands while system is operating as high pressure oil leaks can be dangerous! If skin is pierced with hydraulic fluid at high pressure seek immediate medical attention as fluid injected into the skin could cause gangrene if left untreated. Relieve pressure before disconnecting hydraulic lines or working system. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. |

1. Check hydraulic oil daily by means of sight gauge on reservoir. Add oil as necessary to maintain level around mid-point of sight gauge. Periodically inspect hoses and fittings for leaks.

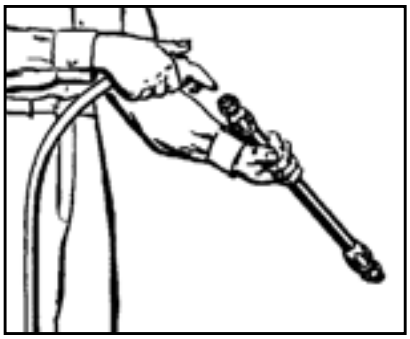
| | |
|---|---|
| **NOTICE!** | Change hydraulic oil filter after first week (or not more than 50 hours) of operation on a unit. |

2. After first filter change, replace filter when indicator reaches Red Zone.
3. Drain reservoir through drain plug (not through suction outlet), flush, and refill and change filter element annually. Oil and filter should also be changed whenever oil shows any signs of breaking down under continued high-pressure operation. Discoloration of oil is one sign of breakdown.

## HYDRAULIC HOSE

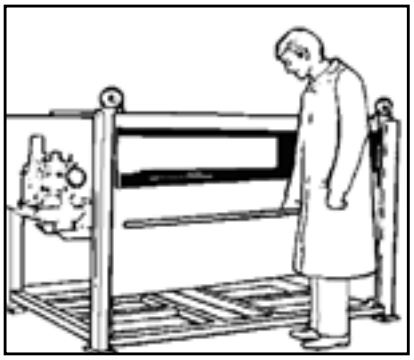
Hose assemblies in operation should be inspected frequently for leakage, kinking, abrasion, corrosion or other signs of wear or damage. Worn or damaged hose assemblies should be replaced immediately.

**WARNING** Testing should be conducted in approved test stands with adequate guards to protect the operator.



**Clean**
Clean assembly by blowing out with clean compressed air. Assemblies may be rinsed out with mineral spirits if the tube stock is compatible with oil, otherwise hot water at 150°F (66° C) maximum may be used.

**Inspect**
Examine hose assembly internally for cut or bulged tube, obstructions, and cleanliness. For segment style fittings, be sure that the hose butts up against the nipple shoulder; band and retaining ring are properly set and tight, and segments are properly spaced. Check for proper gap between nut and socket or hex and socket. Nuts should swivel freely. Check the layline of the hose to be sure the assembly is not twisted. Cap the ends of the hose with plastic covers to keep clean.



**Test**
The hose assembly should be hydrostatically tested at twice the recommended working pressure of the hose.
Test pressure should be held for not more than one minute and not less than 30 seconds. When test pressure is reached, visually inspect hose assembly for: 1. Any leaks or signs of weakness. 2. Any movement of the hose fitting in relation to the hose. Any of these defects are cause for rejection.

### Storage and Handling

Hose should be stored in a dark, dry atmosphere away from electrical equipment, and the temperature should not exceed 90° F (32° C)

## CONVEYOR CHAIN

| | |
|---|---|
| **WARNING** | Stay out of the spreader. If it's necessary to enter the spreader, return to the shop, empty body, turn off all power, set vehicle brakes, lock engine starting switch and remove keys before entering. Tag all controls to prohibit operation. Tags should be placed, and later removed, only by person working in the body. |

Hose down unit and remove any material build-up on sprockets and under chain.

| | |
|---|---|
| **NOTICE!** | The conveyor will move away from the bottom panel if material accumulates under the conveyor or on the sprockets. The more material that accumulates, the closer the chain will come to the chain shields. If the conveyor should catch a chain shield, it could permanently damage the conveyor, the chain shields or the unit. Do not remove material while conveyor or spinner is running! |

### Lubrication

Make sure unit is clean and completely dry. Lubricate conveyor chain at the end of each day of usage using a mixture of 75% fuel oil and 25% SAE 10 oil. Shut down spinner and run conveyor at 20 RPM for two full revolutions to lubricate chain. After each unit washing, allow to dry, then lubricate.

Before filling the unit with spreading material, activate the controller or power switch to run the pump oiler. Bleed all air from the lines and adjust the two spray nozzles (Figure 1) so that the oil mixture sprays vertical onto the sprockets and chain.

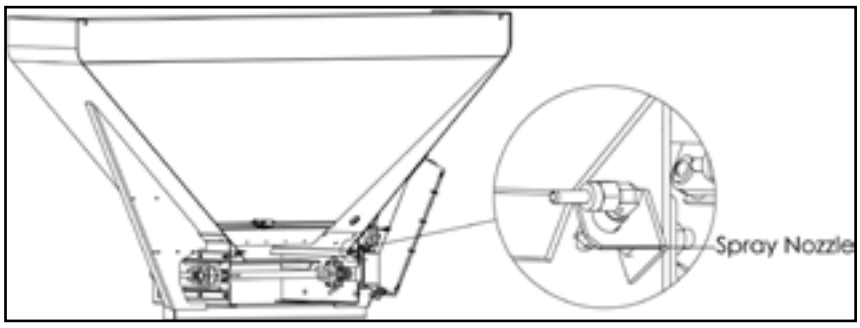



**Figure 1 - Spray Nozzle**

### Tension

Proper chain tension is also a factor in chain and sprocket life (Figure 2). Measure from rear of unit forward to achieve proper chain tension. Make sure chain is tensioned equally on both sides. This adjustment is made on each side of the unit at the idler bearings.

Chain Tension to be Measured from Rear of Sill.

Proper Tension:

L5034G4 conveyor
36" to 40"
(91cm - 102cm)

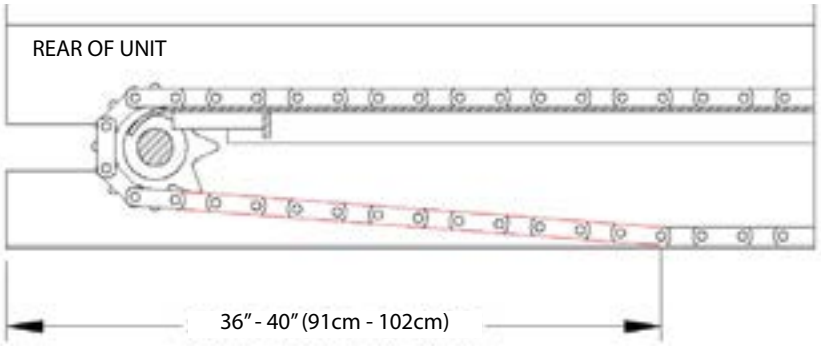



**Figure 2 - Adjusting Chain Tension**

Conveyor chains that are too tight will tend to stretch, causing excess sprocket wear and eventually breakage. Excess slack presents the possibility of chain catching on sub-frame parts. Bent or distorted chain bars will cause damage as well. Straighten or replace bent or distorted chain bars immediately. It also causes fertilizer leakage with chain conveyors.

## CONVEYOR GEARCASE

Drain oil in a new unit after first two weeks (or not more than 100 hours) of operation, and flush gear case thoroughly with light oil. Refer to Lubricant and Hydraulic Oil Specifications section for proper grade oil. Refill gear case with 1-1/2 pints (.70 liters) of recommended lubricant. After initial change, oil should be changed every 2,000 hours of operation or annually, whichever occurs first.

Check gear case oil level monthly.

## LUBRICATION OF BEARINGS

Grease in a bearing acts to prevent excessive wear of parts, protects ball races, and balls from corrosion and aids in preventing excessive heat within the bearing. It is very important the grease maintain its proper consistency during operation. It must not be fluid and it must not channel.

Make sure all fittings are thoroughly cleaned before grease is injected. Points to be lubricated by means of a grease gun have standard grease fittings.

Lubricate bearings by pumping grease slowly until it forms a slight bead around the seals. This bead indicates adequate lubrication and also provides additional protection against the entrance of dirt.

## FASTENERS

Tighten all screws fasteners to recommended torque's after first week of operation and annually thereafter. If loose fasteners are found at anytime, tighten to recommended torque. Replace any lost or damaged fasteners or other parts immediately. Check body mounting hardware every week.

## CLEAN UP

| | |
|---|---|
| **NOTICE!** | High pressure wash can inject water and/or fertilizer into control components, causing damage. Use caution when cleaning these areas. |

Thoroughly wash unit every two to three days during the operating season to maintain minimal maintenance operation. Hose unit down under pressure to free all sticky and frozen material.

It is important the unit be thoroughly cleaned at the end of each operating season. All lubrication and maintenance instructions should be closely followed. Repaint worn spots to prevent formation of rust.

| | |
|---|---|
| **NOTICE!** | The lubricant distributor and/or supplier is to be held responsible for results obtained from their products. Procure lubricants from distributors and/or suppliers of unquestionable integrity, supplying known and tested products. Do not jeopardize your equipment with inferior lubricants. No specific brands of oil are recommended. Use only products qualified under the following oil viscosity specifications and classification recommended by reputable oil companies. |

## HYDRAULIC SYSTEM

Use premium quality lubricants with 100-200 SUS or 20-43 cSt viscosity at operating temperatures. The hydraulic fluid's specifications in the table below are for normal operating conditions. Extreme environments or dirty conditions may require the use of different oils. Consult your New Leader dealer or the Product Support Department at Highway Equipment Company for systems operating outside normal conditions.

| | |
|---|---|
| Ideal Oil Operating Temperature | 115-158°F (46.11-70° C) |
| Recommended Premium Lubricant | Multi-Purpose Agriculture Hydraulic & Transmission Oil |
| Lubricant Specifications<br>Viscosity Index<br>Viscosity at 40°C, cst<br>Viscosity at 100°C, cst | <br>Greater than 130<br>Less than 68<br>Greater than 9 |
| Acceptable Fluid Sample | **John Deere Hy-Gard® J20C** |

## GEARCASE LUBRICANT

Lubricate these assemblies with non-corrosive type SAE 90 E.P. (extreme pressure) gear oil conforming to MIL-L2105 B multi-purpose gear lubricating oil requirements (API Service GL 4) with ambient temperatures from 40° to 100° F (4.5 to 38° C). Ambient temperatures below 40° F (4.5° C). require SAE 80 E.P. lubricant; above 100° F (38° C) use SAE 140 E.P. grade oil.

## GREASE GUN LUBRICANT

Use a waterproof ball and roller bearing lithium base lubricant with a minimum melting point of 300°F (149° C). This lubricant should have a viscosity which assures easy handling in the pressure gun at prevailing atmospheric temperatures. The grease should conform to NLGI No. 2 consistency.

## CHAIN OILER MIXTURE

Use a mixture of 75% No. 1 or No. 2 diesel fuel or kerosene mixed with 25% SAE 10 engine oil.

**WARNING** Shut off all power and allow all moving parts to come to rest before performing any maintenance operation.

The spreader should be regularly lubricated with the lubricants recommended in this manual in accordance with the following chart:

| Location | Places | Method | Fequency |
|---|---|---|---|
| **Hydraulic System** | | | |
| Reservoir | 1 | Oil | Check Daily. Change Annually |
| Filter | 1 | Check daily; Change when indicated (Red) | |
| **Conveyor** | | | |
| Dragshaft Bearings | 2 | Grease Gun | Weekly |
| Idler Shaft Bearings | 2 | Grease Gun | Weekly |
| Take-Up Screws | 2 | Hand Grease | Weekly |
| Chain Oiler | 1 | Oil Mixture | Daily, After Use |
| Gear Case | 1 | Gear Oil | Check Monthly; Change Annually |
| **Jack Assembly** | | | |
| Gears | 1 | Grease Gun | Annually |
| Tube | 1 | Grease Gun | Weekly |
| **Spinner** | | | |
| Grease Zerks - Shaft | 2 | Grease Gun | Weekly |
| Grease Zerks - Jack | 2 | Grease Gun | Weekly |

NOTE: Unusual conditions, such as excessive dust, temperature extremes or excessive moisture may require more frequent lubrication of specific parts.

*See *Lubricant and Hydraulic Oil Specifications* for types of lubricants and oil to be used.

This chart is to help determine which conveyor is best for specific applications. Find the closest description of the type of material to be spread.

- X indicates the preferred conveyor.
- O indicates a suitable alternative conveyor.
- NR indicates the conveyor and/or spreader is not recommended for the specified application.

The density provided was used to make the conveyor recommendation. If the density of the material to be spread is outside of those in the table, contact your New Leader dealer for the best conveyor for your application.

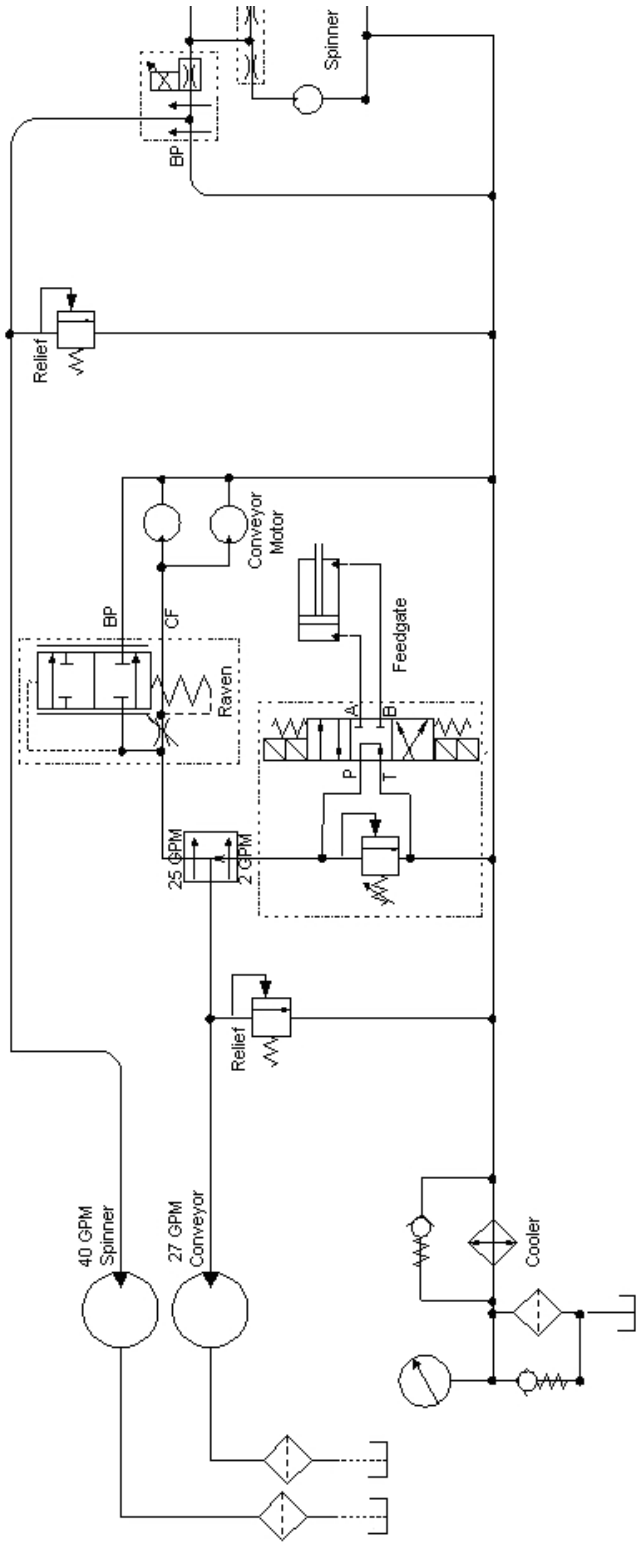
| Product | Density lbs/ft³ (kg/m³) | #1 Chain | #2 Chain | #3 Chain* |
|---|---|---|---|---|
| Poultry Litter | 16 - 54 (256 - 865) | X | O | O |
| Waste Sludge | 40 - 65 (641 - 1041) | X | O | O |
| Paper Pulp | approx. 42 (673) | X | O | O |
| Compost Cattle Manure | 36 - 65 (577 - 1041) | X | O | O |
| Gin Trash | 35 - 50 (561 - 801) | NR | O | X |
| Fly Ash** | 38 - 45 (609 - 769) | NR | X | O |
| Gypsum** | 65 - 80 (1041 - 1281) | NR | NR | NR |
| Lime** | 80 - 100 (1281 - 1602) | NR | NR | NR |
| Sulfur** | 80 - 100 (1281 - 1602) | NR | NR | NR |
| Fertilizer | Not Recommended | NR | NR | NR |

* - A #3 conveyor is not recommended for use with material that is greater than 25% moisture content. Wet material can slip on a #3 conveyor and may not flow to the feed gate.

** - Trial and error is necessary to determine the spreader's maximum capacity for each material so as not to exceed the system pressures of the hydraulic system and stall the conveyor.

NOTE: Field experience has shown that payload capacity can be increased with the use of chain shields in some applications.

**HYDRAULICS SCHEMATIC**



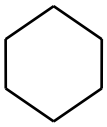
- Symptom: Spinner motors do not turn when spinner control valve is in running position or conveyor does not run when placed in "On" position. See reasons 1, 2, 3, 4, 6, 7, 8 & 9.
- Symptom: Spinners turn but conveyor does not run in manual mode. See reasons 5, 7, 9 & 10.
- Symptom: Console in operation mode, but the conveyor does not move when the machine moves. See reasons 5, 7, 9 & 10.
- Symptom: Spinner speed does not stay constant. See reasons 4, 8, 11, 12 & 13.
- Symptom: Spinners run with cab control in "Off" position. See reason 14.
- Symptom: Hydraulic oil overheats (200° F (93.33° C) or hotter). See reasons 1, 5, 8, 15, 16, 17 & 18.
- Symptom: Light flashes and buzzer sounds intermittently. Conveyor runs in jerks. See reasons 19 & 23.
- Symptom: Conveyor does not run with cab control "On", PTO engaged and vehicle driving forward. See reasons 20.
- Symptom: Conveyor runs when control switch in cab is in "Off" position. See reasons 15 & 21.
- Symptom: Conveyor starts to run when PTO is engaged. See reasons 15, 20, 21 & 22.
- Symptom: Controller application or programming. Refer to the control manual's Troubleshooting section.

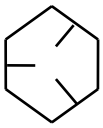
| Reason: | Correction: |
|---|---|
| 1. Hydraulic oil level low. | Add hydraulic oil to reservoir to maintain level around mid-point of sight gauge. |
| 2. Shut Off valve on oil reservoir not open. | Open valve fully by turning counter clockwise until it stops. |
| 3. Hydraulic Pump is not rotating. | 1. PTO is disengaged. Shift into engagement.<br>2. Drive line has failed. Repair or replace.<br>3. Key in pump shaft has failed. Replace key.<br>4. U-joint pin or key has failed. Replace pin or key. |
| 4. Worn pump. | With flow meter arranged to check relief valve setting above, open load valve fully. Read flow rate with truck engine running at max RPM. Close load valve until pressure reads 1000 PSI (69 bar). Flow rate should not decrease more than three (3) GPM. If flow loss is greater, replace pump. |
| 5. Conveyor relief valve open to return line. | Using relief valve testing adapter and flow meter, test valve for opening pressure. If not 3100 PSI (214 bar), replace relief valve. |
| 6. Jammed or frozen spinner motors. | Free up. If not possible, replace as required. |
| 7. Jammed or frozen conveyor. | Free up conveyor. |

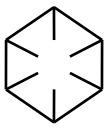
| Reason: | Correction: |
|---|---|
| 8. In line relief valve set too low. | In line relief valve pressure should be 3100 PSI (214 bar). Set spinner control valve to "0". Disconnect pressure line, coming from rear port on spinner control valve, at control. Reconnect this line to flow meter inlet port. Disconnect return line from control where it joins the return tube running to the reservoir. Connect flow meter load valve to return tube. Open load valve fully, run truck engine at max RPM. Slowly close load valve until pressure reaches 3100 PSI (214 bar). If this pressure cannot be reached, set up relief valve adjustment until gauge reads 3100 PSI (214 bar).<br>CAUTION: Do not set pressure above 3100 PSI (214 bar). |
| 9. Jammed or frozen conveyor hydraulic motor. | Replace motor. |
| 10. Conveyor hydraulic motor shaft key sheared. | Replace key. |
| 11. Pump speed is not adequate to provide sufficient flow to maintain spinner speed. | Increase engine speed or resize hydraulic pump to meet system requirements. |
| 12. Insufficient hydraulic oil flow at normal driving speeds. | Check PTO-Pump matching. If insufficient flow results, install higher percent PTO or use larger pump (Special). |
| 13. Defective spinner control valve. | Replace valve metering spool spring. If no improvement, replace spinner control valve. |
| 14. Cab control is for conveyor only—spinners run anytime vehicle engine is running, PTO is engaged and spinner control valve is in a running position. | None required. This is a normal condition. To stop spinners, set spinner control valve at "O" position, disconnect PTO, or shut off vehicle engine. |
| 15. Excessive oil is being pumped. | 1. PTO percentage too high. Change PTO to smaller percentage or use smaller pump.<br>2. Pump is too large. Do not exceed 40 GPM (151 LPM) pumping rate. Change to smaller pump or use smaller percentage PTO.<br>3. Pressure drop in control valve is sufficient to run lightly loaded conveyor motor. Shut off pump drive by disengaging PTO shaft. |
| 16. Worn motor (spinner or conveyor). | Motor heats up at an excessive rate (check for this heating when system is cold). Replace motor. |
| 17. Improper or deteriorated hydraulic oil. | Replace hydraulic oil with proper specification oil and replace filter. |
| 18. Pinched or obstructed hose, hydraulic line or fitting. | Clear obstruction or replace part. Straighten kinked hoses. |
| 19. Driving too fast for application rate. | Shift truck transmission to a lower gear. Will not normally occur if within maximum application rates. |
| 20. Defective radar. | Check speed on console. Repair or replace radar as required. |
| 21. Control processor's power is in "Off" position. | Turn on control processor. |
| 22. Involves the controller. | Refer to control manual. |

# STANDARD TORQUES
# NATIONAL COARSE (NC) CAP SCREWS

CAP SCREW GRADE IDENTIFICATION - MARKINGS ON HEAD

SAE GRADE 2  NO MARKINGS

SAE GRADE 5  THREE MARKS - 120 DEGREES APART

SAE GRADE 8  SIX MARKS - 60 DEGREES APART

USE GRADE 2 TORQUES FOR STAINLESS STEEL FASTENERS AND CARRIAGE BOLTS.

| CAP SCREW SIZE | TORQUE - FOOT-POUNDS | | | | | |
|---|---|---|---|---|---|---|
| | GRADE 2 | | GRADE 5 | | GRADE 8 | |
| | DRY | LUBE | DRY | LUBE | DRY | LUBE |
| 1/4” | 5 | 4 | 8 | 6 | 12 | 9 |
| 5/16” | 11 | 8 | 17 | 13 | 25 | 18 |
| 3/8” | 20 | 15 | 30 | 23 | 45 | 35 |
| 7/16” | 30 | 24 | 50 | 35 | 70 | 55 |
| 1/2” | 50 | 35 | 75 | 55 | 110 | 80 |
| 9/16” | 65 | 50 | 110 | 80 | 150 | 110 |
| 5/8” | 90 | 70 | 150 | 110 | 220 | 170 |
| 3/4” | 100 | 120 | 260 | 200 | 380 | 280 |
| 7/8” | 140 | 110 | 400 | 300 | 600 | 460 |
| 1” | 220 | 160 | 580 | 440 | 900 | 650 |

Hi-Way NEW LEADER
Highway Equipment Company
Building the best since 1959.

Order from the **AUTHORIZED DEALER** in your area.

1. Always give the pertinent model and serial number.

2. Give part name, part number and the quantity required.

3. Give the correct address to where the parts are to be shipped, and the carrier if there is a preference.

Unless claims for shortages or errors are made immediately upon receipt of goods they will not be considered. Any part returns should be directed through the dealer from which they were purchased.

When broken goods are received, a full description of the damage should be made by the carrier agent on the freight bill. If this description is insisted upon, full damage can always be collected from the transportation company.

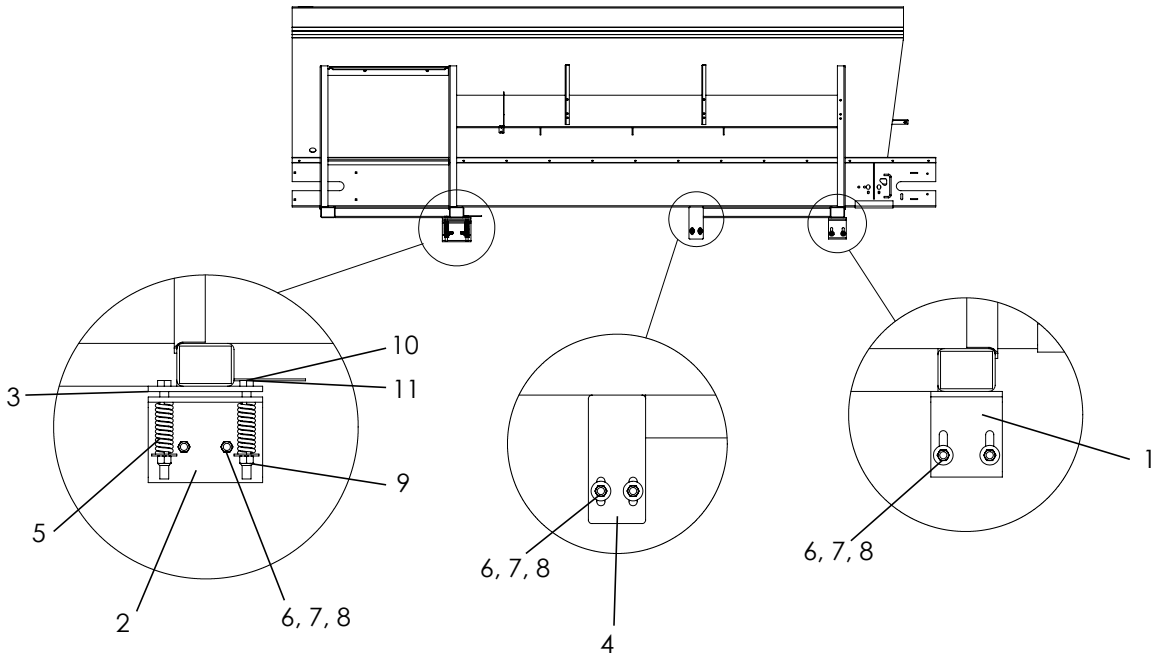
No responsibility is assumed for delay or damage to merchandise while in transit. Our responsibility ceases upon delivery of shipment to the transportation company from whom a receipt is received showing that shipment was in good condition when delivered to them, therefore, claims (if any) should be filed with the transportation company and not with Highway Equipment Company.

If your claims are not being handled (by the transportation company) to your satisfaction, please call the Parts Manager at Highway Equipment Company (319-363-8281) for assistance.

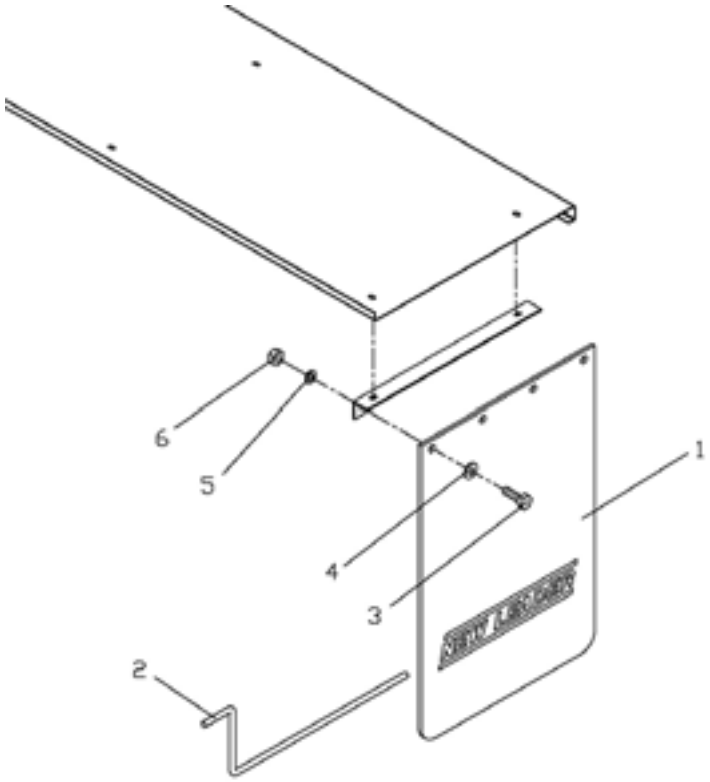
In the parts list the following symbols and abbreviations stand for:

* - Not Shown
AR – As Required
CS – Carbon Steel
SS – Stainless Steel

The parts listed under the different steel types (CS, 409 SS and 304 SS) are for that type of unit and do not necessarily mean the part is made of that type of steel.

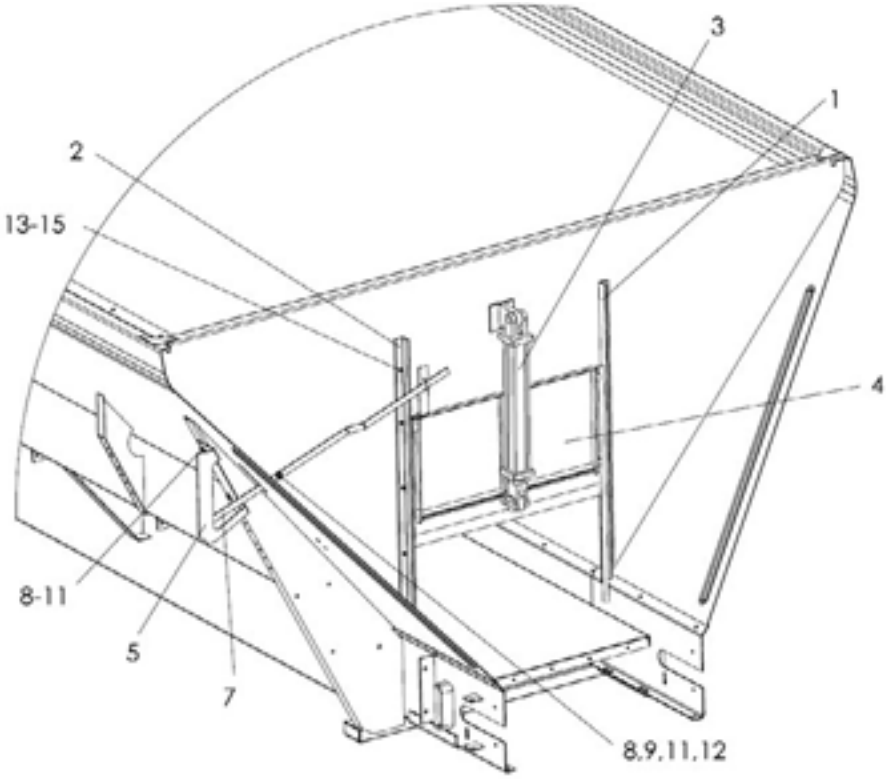



| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 31856 | Angle - Mounting | 2 |
| 2 | 81847 | Angle - Tie Down | 2 |
| 3 | 81848 | Mounting - Bar | 2 |
| 4 | 310424 | Mounting - Bar 4” x 9” | 2 |
| 5 | 81000 | Spring | 4 |
| | 305579-AB | Hardware Kit - Includes 6-11 | |
| 6 | 20131 | Cap Screw - 1/2-13NC x 2 | 12 |
| 7 | 20695 | Washer – Flat 1/2 | 12 |
| 8 | 20680 | Nut - Lock 1/2-13NC | 12 |
| 9 | 41762 | Nut – Lock 5/8-11NC | 4 |
| 10 | 20195 | Cap Screw - 5/8-11NC x 6-1/2 | 4 |
| 11 | 20697 | Washer – Flat 5/8 | 4 |



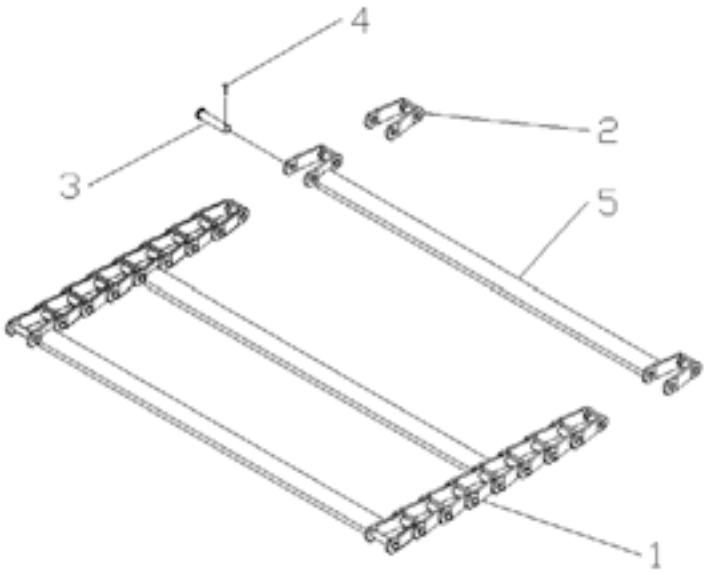

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 46474 | Hardware – Kit, Includes 3-6 | |
| 1 | 21770 | Mudflap – Plain | 2 |
| | * 304245 | Mudflap – Midguard | 2 |
| 2 | 36844 | Rod – Mudflap | 2 |
| 3 | 20067 | Cap Screw – 3/8-16 x 1 | 8 |
| 4 | 20693 | Washer – Flat 3/8 | 8 |
| 5 | 20712 | Washer – Lock 3/8 | 8 |
| 6 | 20644 | Nut – Hex 3/8-16 | 8 |

* - Not Shown


3
1
2
13-15
4
8-11
5
7
8,9,11,12

| ITEM | PART NO. | | DESCRIPTION | QTY |
|---|---|---|---|---|
| | CS | SS | | |
| 1 | 70287 | 70287-X1 | Slide – Wldmt Feedgate RH w/ chain shields | 1 |
| | 70286 | 70286-X1 | Slide – Wldmt Feedgate RH w/o chain shields | 1 |
| 2 | 70289 | 70289-X1 | Slide – Wldmt Feedgate LH w/ chain shields | 1 |
| | 70288 | 70288-X1 | Slide – Wldmt Feedgate LH w/o chain shields | 1 |
| 3 | 55377 | 55377 | Cylinder – Hydraulic | 1 |
| 4 | 305488 | 305486 | Feedgate – Wldmt 34” w/ chain shields | 1 |
| | 305473 | 303298 | Feedgate – Wldmt 34” w/o chain shields | 1 |
| 5 | 303379 | 303325 | Bracket – Indicator | 1 |
| 6 | *55395 | 55395 | Decal – Indicator | 1 |
| 7 | 303324 | 303323 | Indicator – Feedgate | 1 |
| 8 | 20068 | 36399 | Cap Screw – 3/8-16 x 1-1/4 | 3 |
| 9 | 20693 | 36425 | Washer – Flat 3/8 | 6 |
| 10 | 20712 | 36420 | Washer – Lock 3/8 | 2 |
| 11 | 20644 | 36414 | Nut – Hex 3/8-16 | 3 |
| 12 | 20678 | 72054 | Nut – Lock 3/8-16 | 1 |
| 13 | 20003 | 36393 | Cap Screw – 1/4-20 x 3/4 | 4 |
| 14 | 20710 | 36418 | Washer – Lock 1/4 | 4 |
| 15 | 20642 | 36412 | Nut – Hex 1/4-20 | 4 |
| 16 | *71829 | *71829 | Screw - Truss Head 3/8-16 x 1 SS | AR |
| 17 | *36420 | *36420 | Washer - Lock 3/8 SS | AR |
| 18 | *36414 | *36414 | Nut - Hex 3/8-16 SS | AR |
| 19 | *304452 | *304451 | Retainer - Belt 34” w/ chain shields | NC |
| | *305474 | *303302 | Retainer - Belt 34” w/o chain shields | NC |
| 20 | *303318 | *303318 | Sealer - Feedgate 34” w/ chain shields | NC |
| | *303303 | *303303 | Sealer - Feedgate 34” w/o chain shields | NC |

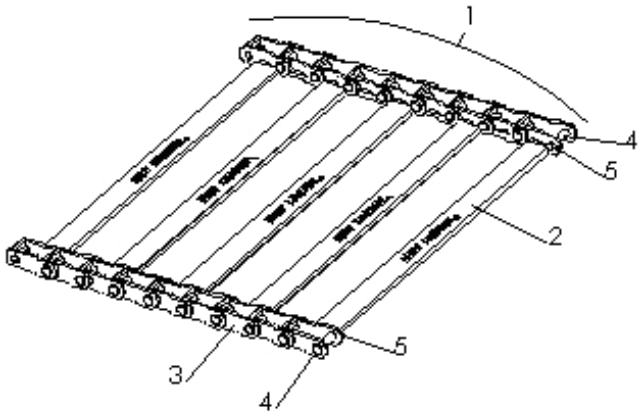
* - Not Shown AR - As Required NC - Non-Current



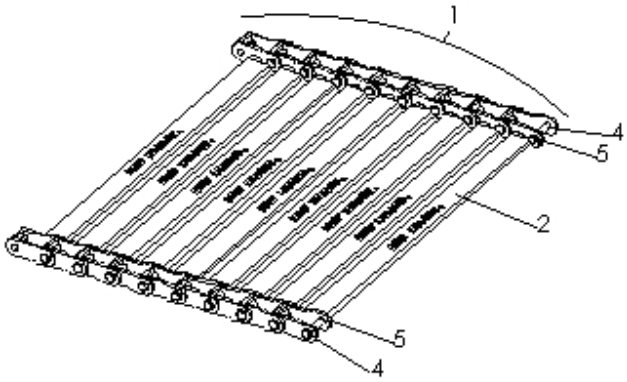

#1 – Cross bars every 3rd link

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 305774-AB | #1 Pintle Chain – 13’ Unit | 1 |
| | 305774-AC | #1 Pintle Chain – 14’ Unit | 1 |
| | 305774-AD | #1 Pintle Chain – 16’ Unit | 1 |
| | 305774-AE | #1 Pintle Chain – 18’ Unit | 1 |
| | 305774-AF | #1 Pintle Chain – 21’ Unit | 1 |
| 2 | 36699 | Link – Pintle | AR |
| 3 | 36697 | Pin – Chain | AR |
| 4 | 20817 | Pin – Cotter | AR |
| 5 | 95850-X1 | Cross Bar Wldmt | AR |

AR – As required



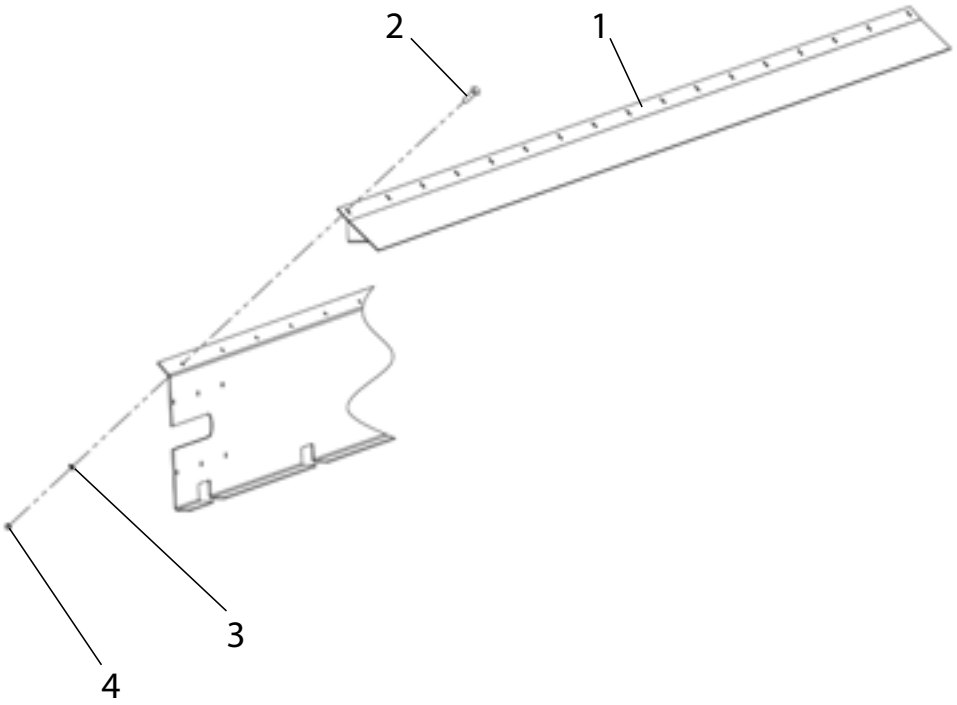

#2 – Cross bars every other link




#3 – Cross bars every link

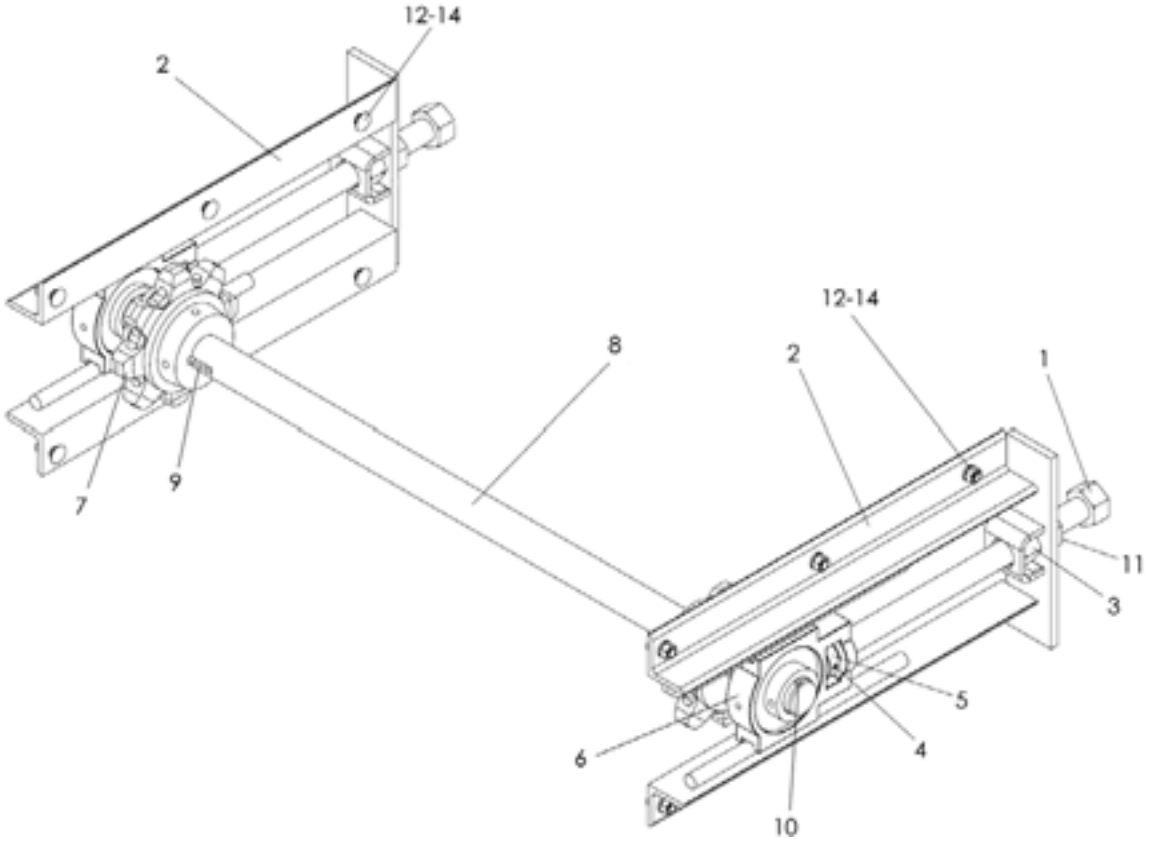
| ITEM | PART NO. | | DESCRIPTION | QTY |
|---|---|---|---|---|
| | #2 | #3 | Chain – Assy | |
| 1 | 304465-AB | 304466-AB | 13’ Unit | 1 |
| | 304465-AC | 304466-AC | 14’ Unit | 1 |
| | 304465-AD | 304466-AD | 16’ Unit | 1 |
| | 304465-AE | 304466-AE | 18’ Unit | 1 |
| | 304465-AF | 304466-AF | 21’ Unit | 1 |
| 2 | 95850 | 95850 | Crossbar Wldmt | AR |
| 3 | 36699 | 36699 | Link – Pintle Chain | AR |
| 4 | 36697 | 36697 | Pin – Pintle Chain | AR |
| 5 | 20817 | 20817 | Pin – Cotter | AR |

AR - As Required

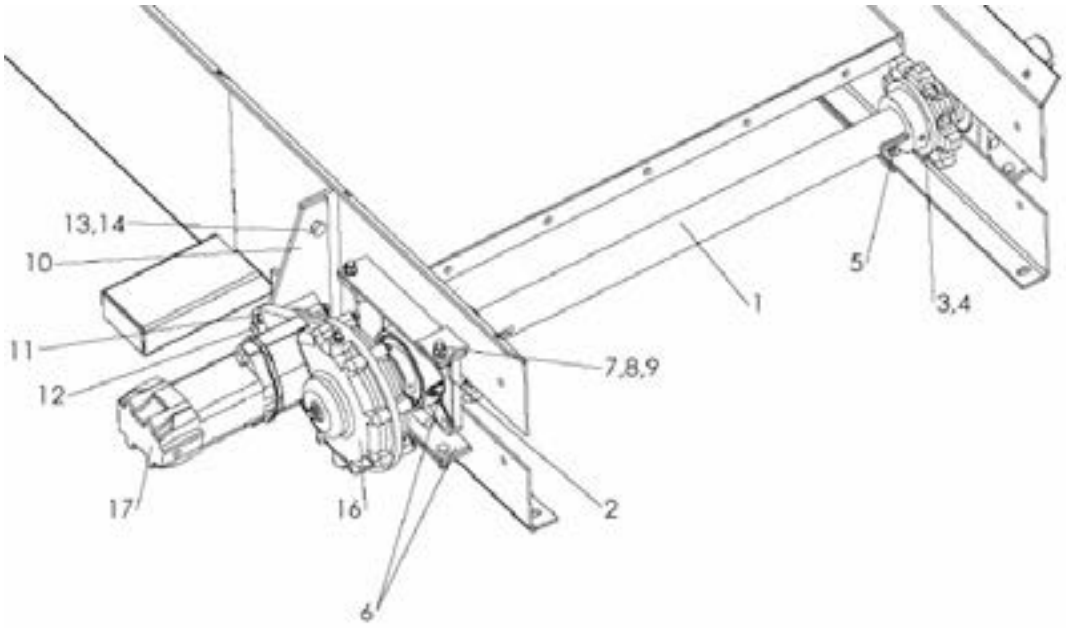



| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | | Chain Shield – Chain | |
| | 305450-AB | 13’ Unit | 2 |
| | 305450-AC | 14’ Unit | 2 |
| | 305450-AD | 16’ Unit | 2 |
| | 305450-AE | 18’ Unit | 2 |
| | 305450-AF | 21’ Unit | 2 |
| 2 | 71829 | Bolt – Carriage 3/8 x 1 | AR |
| 3 | 36420 | Washer – Lock 3/8 | AR |
| 4 | 36414 | Nut – Hex 3/8 | AR |

AR – As Required

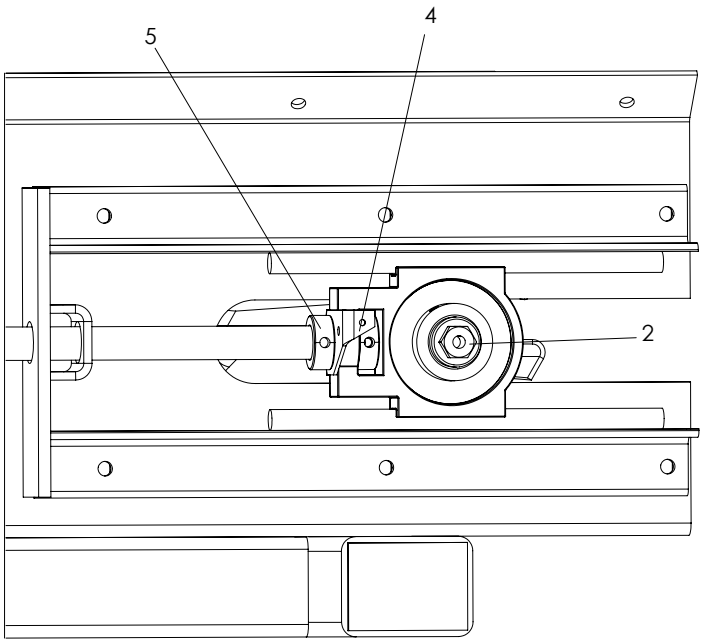


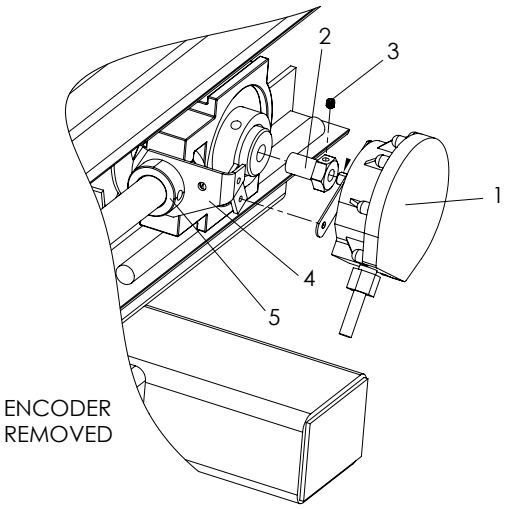

| ITEM | PART NO. | | DESCRIPTION | QTY |
|---|---|---|---|---|
| | CS | SS | | |
| | 303320 | 303320 | Idler - Shaft Assy, Includes 6-10 | |
| 1 | 36508 | 36508 | Tightener – Chain Wldmt | 2 |
| 2 | 7895 | 7895 | Take-up Wldmt | 2 |
| 3 | 39110 | 39110 | Nut Wldmt | 2 |
| 4 | 20925 | 20925 | Pin – Roll 1/4 x 1 1/2 | 2 |
| 5 | 30725 | 30725 | Collar – Set 1” | 2 |
| 6 | 22511 | 22511 | Bearing – Take-up | 2 |
| | 6070 | 6070 | Zerk – Grease .125 45° | 2 |
| 7 | 97051 | 97051 | Sprocket – Idler | 2 |
| 8 | 303305 | 303305 | Shaft – Idler | 1 |
| 9 | 2135 | 2135 | Key – Square 5/16 x 2 1/2 | 2 |
| 10 | 20735 | 20735 | Screw – Set 1/4-20 x 1/4 | 1 |
| 11 | 36509 | 36509 | Nut – Hex 1-8NC SS | 2 |
| 12 | 20319 | 36409 | Bolt – Carriage 3/8-16NC x 1-1/4 | 12 |
| 13 | 20712 | 36420 | Washer – Lock 3/8 | 12 |
| 14 | 20644 | 36414 | Nut – Hex 3/8 | 12 |

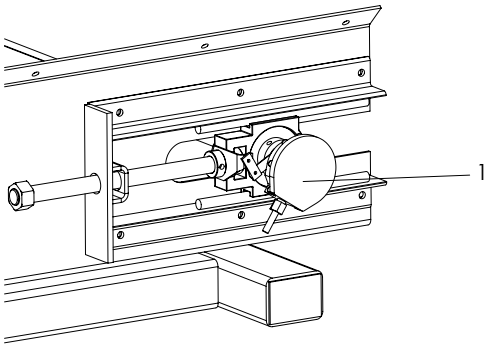



| ITEM | PART NO. | | DESCRIPTION | QTY |
|---|---|---|---|---|
| | CS | SS | | |
| | 303319 | 303319 | Shaft - Drive Assy, Includes 1-5 | |
| 1 | 303304 | 303304 | Shaft – Drive | 1 |
| 2 | 6465 | 6465 | Bearing | 2 |
| 3 | 88276 | 88276 | Sprocket | 2 |
| 4 | 20748 | 20748 | Screw – Set 3/8-16 x 3/8 | 4 |
| 5 | 6131 | 6131 | Key – Square 3/8 x 1 1/2 | 2 |
| 6 | 82882 | 82855 | Guide – Bearing | 4 |
| 7 | 20068 | 36399 | Cap Screw - 3/8 x 1 1/4 | 8 |
| 8 | 20712 | 36420 | Washer – Lock 3/8 | 8 |
| 9 | 20644 | 36414 | Nut – Hex 3/8 | 8 |
| 10 | 82550 | 82552 | Mount – Torque Arm LH | 1 |
| 11 | 20833 | 20833 | Pin – Cotter 1/4 x 1 1/2 | 1 |
| 12 | 2716 | 2716 | Washer – Flat 3/4 | 2 |
| 13 | 20128 | 20128 | Cap Screw - 1/2 x 1 1/4 | 2 |
| 14 | 20680 | 20680 | Nut – Lock 1/2 | 2 |
| 15 | 20644 | 20644 | Nut – Hex 3/8 | 12 |
| 16 | *82549 | *82551 | Mount – Torque Arm RH | 1 |
| 17 | 33671 | 33671 | Gearcase – 6:1, see *Gear Case* parts list | 1 |
| 18 | 303838 | 303838 | Motor – Hydraulic 2000 Series 8.0 CID | 2 |
| | 56270 | 56270 | Motor – Hydraulic 2000 Series 9.6 CID | 2 |
| 19 | *311172 | *311172 | V-Ring Seal | 2 |

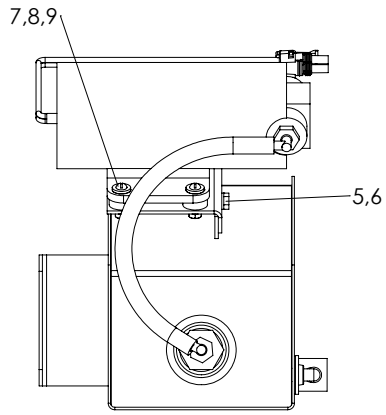
* - Not Shown

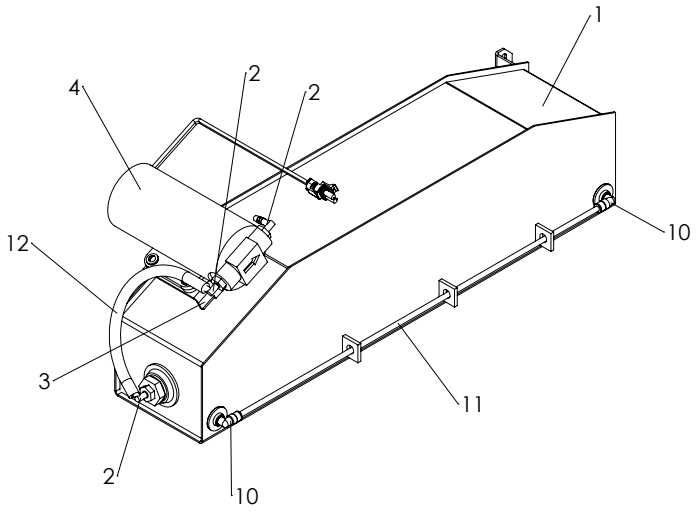



| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 303994 | Encoder – 180 with Hardware | 1 |
| 2 | 310601 | Coupler - Rate Sensor SS | 1 |
| 3 | 310603 | Screw - Set 1/4-20NC x 1/4 SS | 1 |
| 4 | 81949 | Bracket - Sensor, Idler Mount | 1 |
| 5 | 2696 | Collar - Set 1” | 1 |


7,8,9
5,6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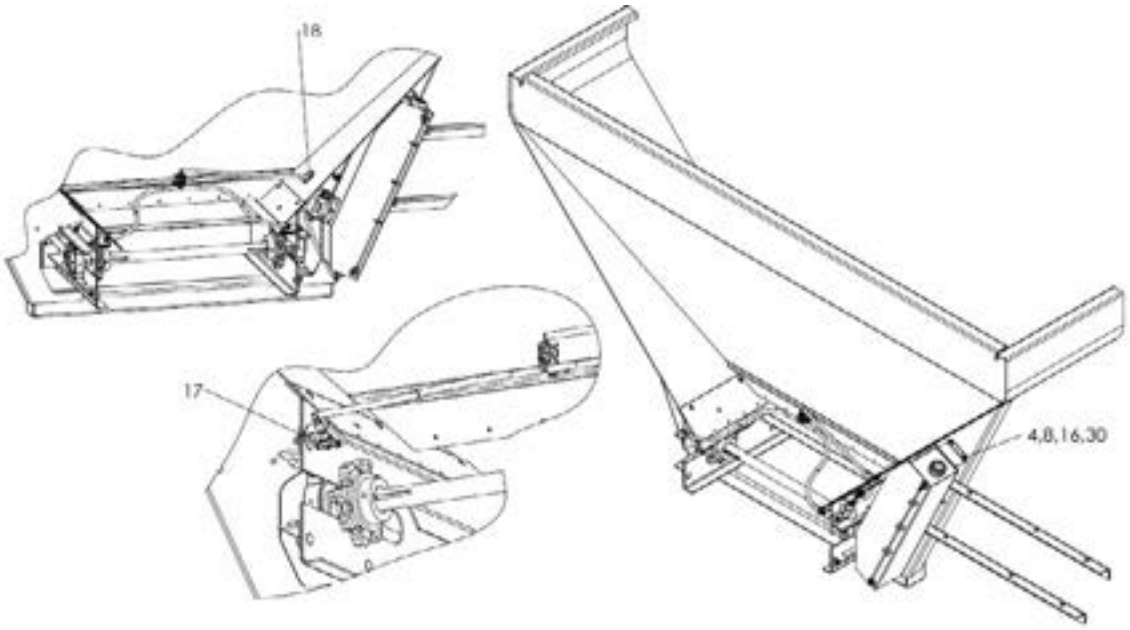
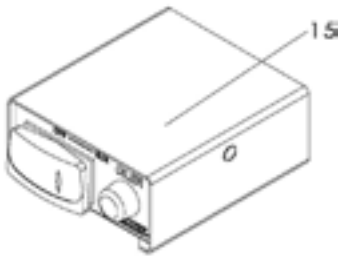
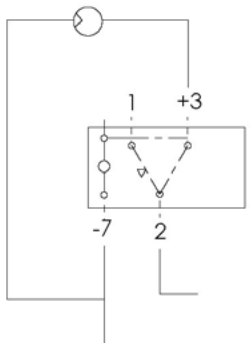

18
17
4,8,16,30


15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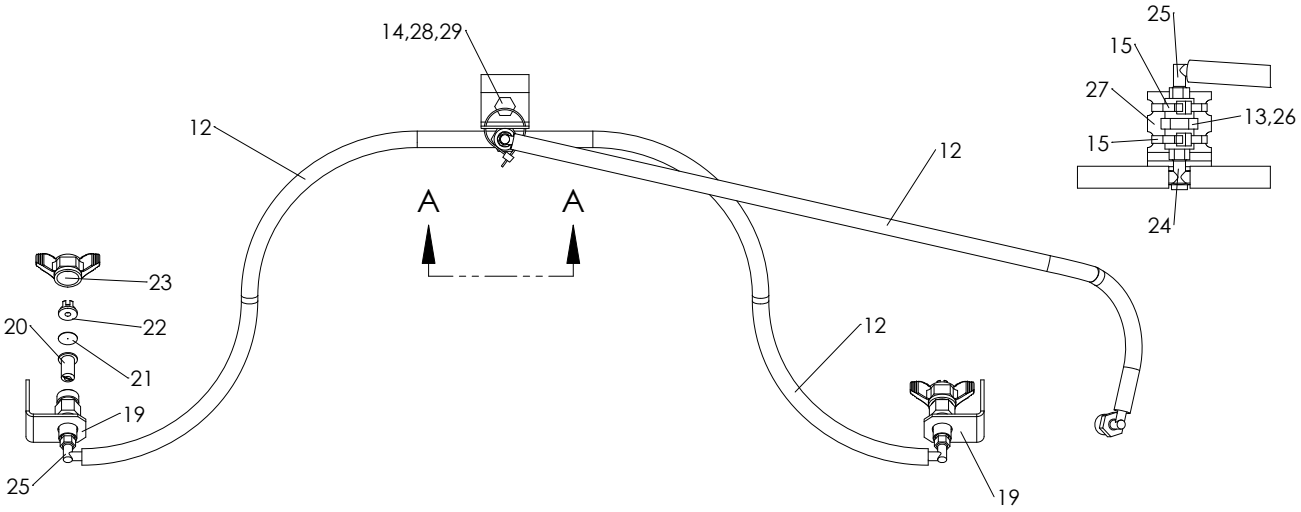
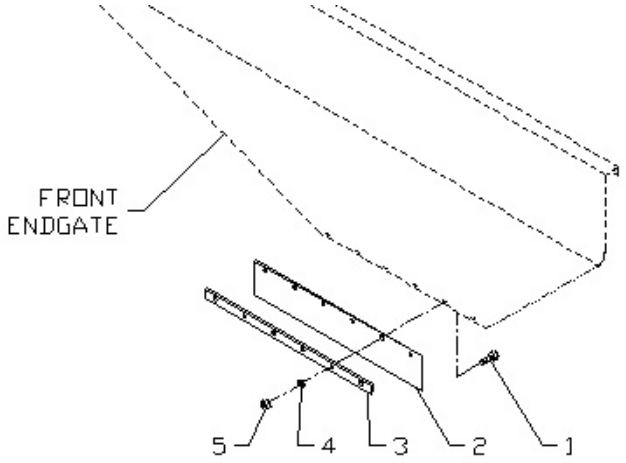
2



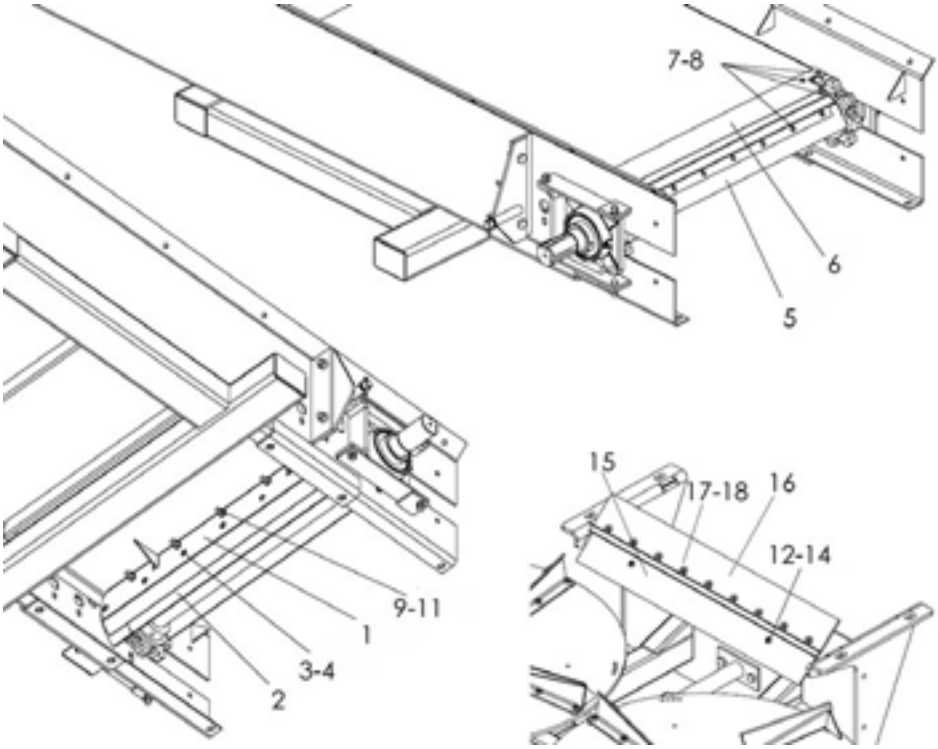

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 306066 | Tank - Assy Chain Oiler, Includes 1-13 | |
| | 306659 | Nozzle & Hose Assy, Includes 14,19-29 | |
| 1 | 305754 | Tank – Wldmt | 1 |
| 2 | 306657 | Elbow | 3 |
| 3 | 304409 | Mount - Pump | 1 |
| 4 | 304390 | Pump - Assy with Connector | 1 |
| | 304834 | Pump - Diagram 1.1 GPM 30 PSI | 1 |
| | 303730-AB | Connector - FEM Socket Sealed | 1 |
| | 303730-CC | Terminal - FEM Sealed (Sleeve) | 2 |
| | 303730-EB | Seal - Cable Lt Gray | 2 |
| 5 | 36393 | Cap Screw - 1/4 x 3/4 SS | 5 |
| 6 | 36418 | Washer - Lock 1/4 SS | 5 |
| 7 | 44454 | Screw - Socket Head #10-24 x 1 SS | 4 |
| 8 | 171052 | Washer - Flat #10 SS | 8 |
| 9 | 56355 | Nut - Lock #10-24 SS | 4 |
| 10 | 301337 | Fitting - 90 Male 1/8 NPT | 2 |
| 11 | 306437 | Tubing - Clear | 2.063 ft |
| 12 | 26544 | Hose - Low Pressure 1/4 ID x 8 | AR |
| 13 | *306670 | Tape - Thread Seal w/PTFE Yellow Gas Line | AR |
| 14 | 36414 | Nut - Hex 3/8 SS | 2 |
| 15 | 304391 | Panel – Assy Oiler Control | 1 |
| | 99676 | Fuse – 10AMP Fast Acting | 1 |
| 16 | 36412 | Nut - Hex 1/4 SS | 4 |
| 17 | 36399 | Cap Screw - 3/8 x 1-1/4 SS | 2 |
| 18 | 21653 | Grommet - Rubber | 1 |

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 19 | 306649 | Nozzle - Mount Assy | 2 |
| | 304839 | Angle - Wldmt Nozzle Mount | 1 |
| | 306650 | Body - Male Nozzle Brass | 1 |
| 20 | 306651 | Strainer - Check Valve | 2 |
| 21 | 306652 | Plate - Orifice SS | 2 |
| 22 | 306654 | Nozzle - Even Flat Spray SS | 2 |
| 23 | 306653 | Cap - Nozzle | 2 |
| 24 | 306655 | Tee - Black | 1 |
| 25 | 306656 | Elbow - Black | 3 |
| 26 | 306678 | Coupling - Polypropylene | 1 |
| 27 | 306804 | Bracket - Coupling | 1 |
| 28 | 36293 | Cap Screw - 3/8 x 3/4 SS | 1 |
| 29 | 36420 | Washer - Lock 3/8 SS | 1 |
| 30 | 36423 | Washer - Flat 1/4 SS | 4 |

* - Not Shown AR - As Required




| ITEM | PART NO. | | DESCRIPTION | QTY |
|---|---|---|---|---|
| | w/o Chain Shields | w/ Chain Shields | Chain – Assy | |
| 1 | 36393 | 36393 | Screw – Machine 1/4 x 3/4 | 7 |
| 2 | 303314 | 303317 | Wiper – Belt | 1 |
| 3 | 303315 | 303316 | Retainer – Belt | 1 |
| 4 | 36418 | 36418 | Washer – Lock 1/4 | 7 |
| 5 | 36412 | 36412 | Nut – Hex 1/4 | 7 |


7-8
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9-11
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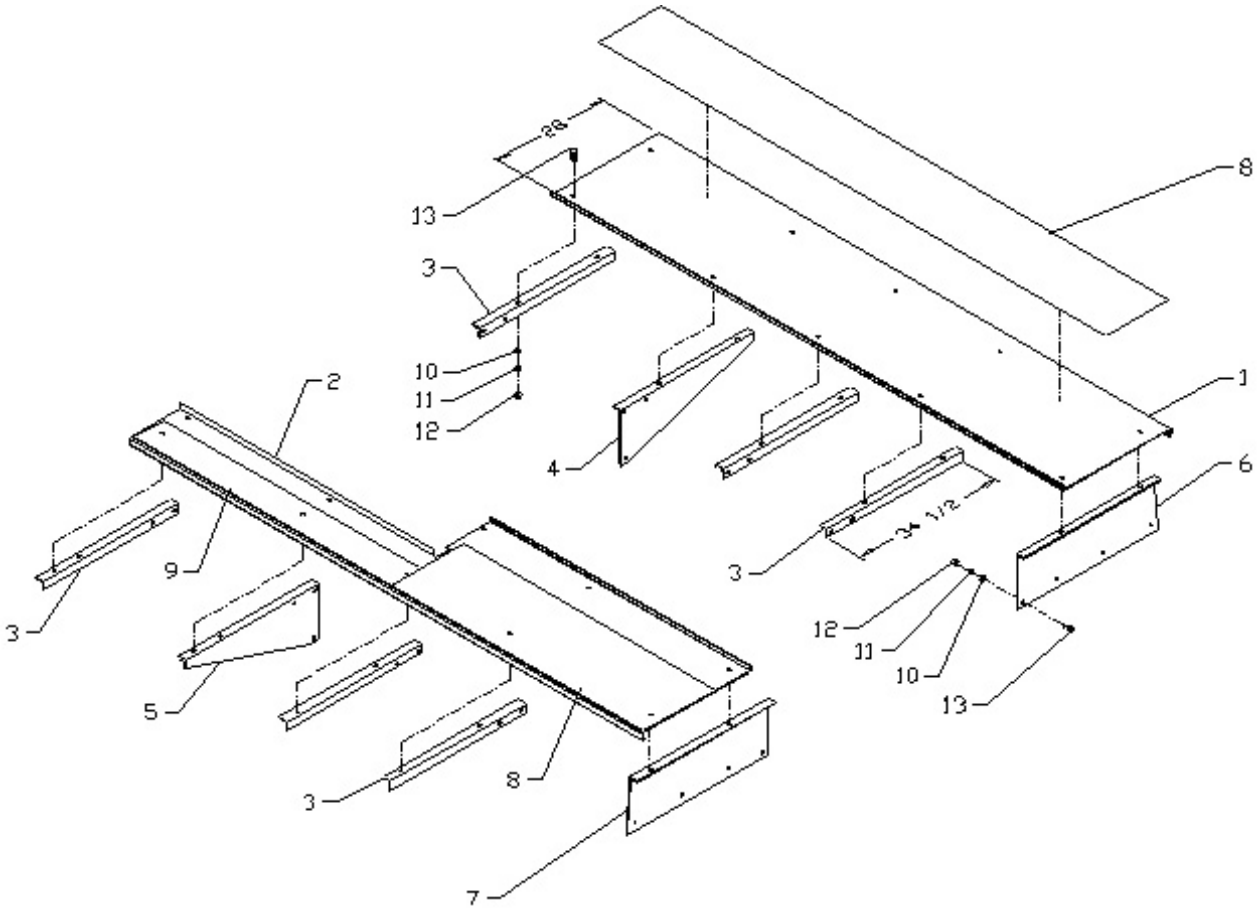
3-4
2

| ITEM | PART NO. | | DESCRIPTION | QTY |
|---|---|---|---|---|
| | CS | SS | | |
| | 304440 | 305330 | Lip - Rear Assy, Includes 5-8 | |
| | 304441 | 304442 | Wiper – Assy Rear, Includes 1-4 | |
| 1 | 304444 | 304445 | Mount - 34” Internal Wiper | 1 |
| 2 | 304443 | 304443 | Rubber - 34” Internal Wiper | 1 |
| 3 | 56258 | 56258 | Screw - Truss Head 1/4-20 x 1/2 SS | 9 |
| 4 | 88931 | 88931 | Nut - Tee 1/4 x 1/4 | 9 |
| 5 | 303306 | 303306 | Wiper - 34” Rear Lip | 1 |
| 6 | 303312 | 305329 | Lip - Wldmt Rear 34” | 1 |
| 7 | 20617 | 56400 | Screw - Flathead 1/4-20 x 1/2 | 13 |
| 8 | 88931 | 88931 | Nut - Tee 1/4 x 1/4 | 13 |
| 9 | 20068 | 36399 | Cap Screw - 3/8-16 x 1-1/4 | 5 |
| 10 | 20712 | 36420 | Washer - Lock 3/8 | 5 |
| 11 | 20644 | 36414 | Nut - Hex 3/8-16 | 5 |
| 12 | 32446 | 32446 | Screw - Truss Head 1/4-20 x 3/4 SS | 2 |
| 13 | 36412 | 36412 | Nut - Hex 1/4-20 SS | 2 |
| 14 | 36418 | 36418 | Washer - Lock 1/4 SS | 2 |
| 15 | 304447 | 304447 | Plate - Wiper Belt Spnr/Conv. 34” | 1 |
| 16 | 304446 | 304446 | Belt - Rear Wiper 34” | 1 |
| 17 | 88931 | 88931 | Nut - Tee 1/4 x 1/4 | 9 |
| 18 | 56258 | 56258 | Screw - Truss Head 1/4-20 x 1/2 SS | 9 |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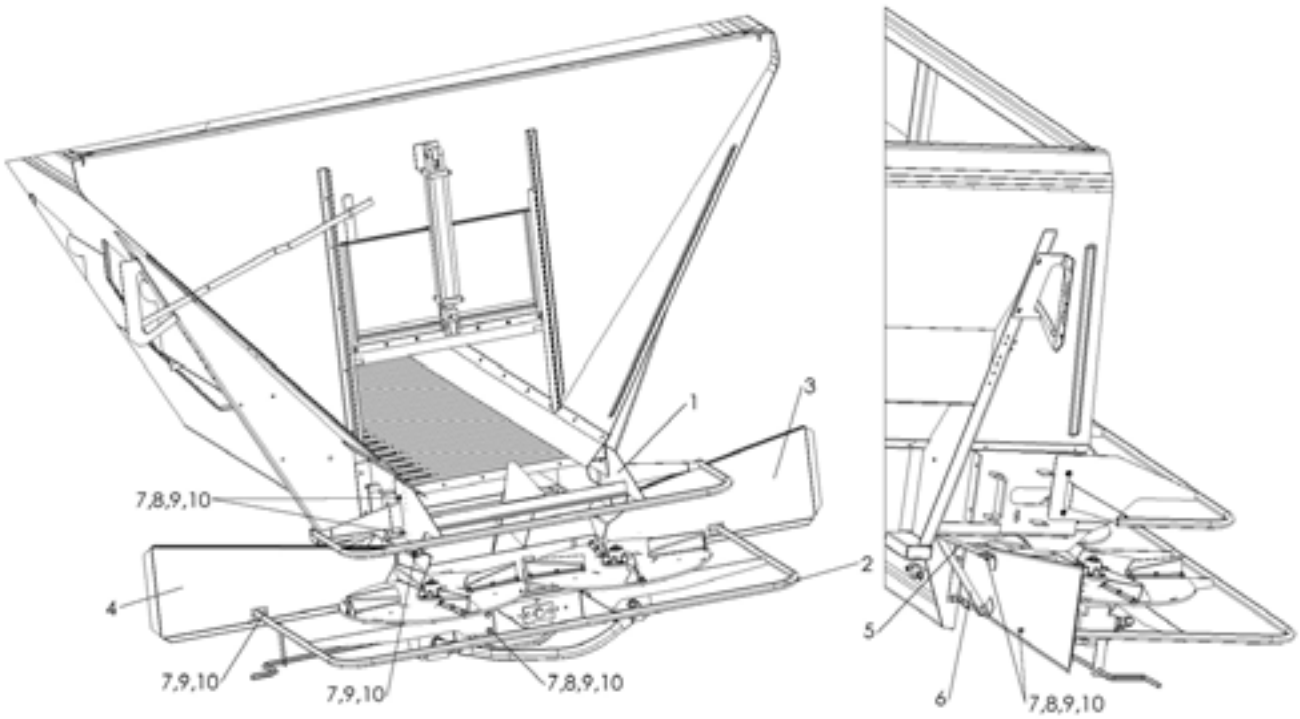
7

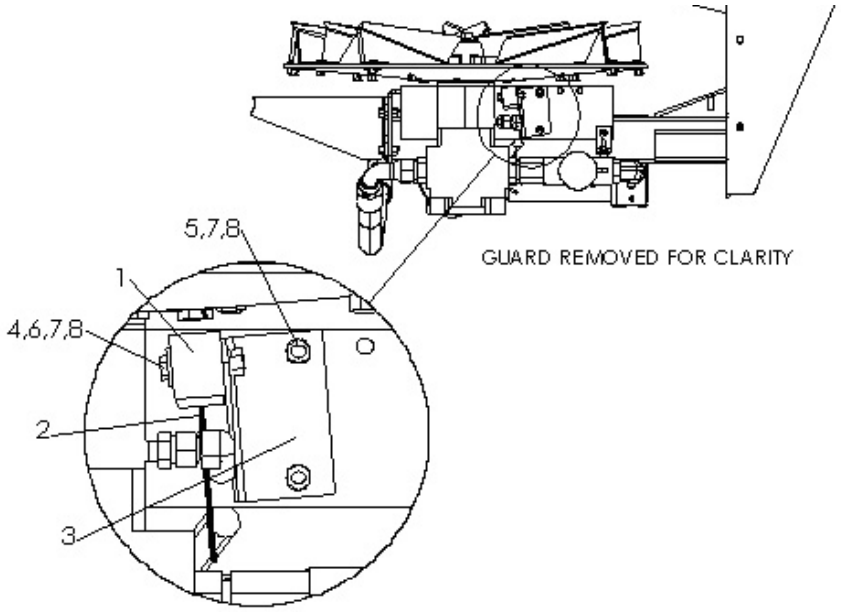
| ITEM | PART NO. | | | DESCRIPTION | QTY |
|---|---|---|---|---|---|
| | CS | 409 SS | 304 SS | | |
| 1 | 83027 | 83043 | 83059 | Fender – RH 13’ Unit | 1 |
| | 83072 | 83078 | 83084 | Fender – RH 14’ Unit | 1 |
| | 83074 | 83080 | 83086 | Fender – RH 16’ Unit | 1 |
| | 303375 | 83080-X2 | 303377 | Fender – RH 18’ Unit | 1 |
| | 304476 | 306256 | 304478 | Fender – RH 21’ Unit | 1 |
| 2 | 83035 | 83051 | 83067 | Fender – LH 13’ Unit | 1 |
| | 83075 | 83081 | 83087 | Fender – LH 14’ Unit | 1 |
| | 83077 | 83083 | 83089 | Fender – LH 16’ Unit | 1 |
| | 303376 | 83083-X2 | 303378 | Fender – LH 18’ Unit | 1 |
| | 304477 | 306258 | 304479 | Fender – LH 21’ Unit | 1 |
| 3 | 83021 | 96969 | 96969 | Angle – Mounting | AR |
| 4 | 83017 | 96965 | 96965 | Formed Angle – RH | 1 |
| 5 | 83018 | 96966 | 96966 | Formed Angle – LH | 1 |
| 6 | 83019 | 96967 | 96967 | Formed Angle – RH Rear | AR |
| 7 | 83020 | 96968 | 96968 | Formed Angle – LH Rear | AR |
| 8 | 21699 | 21699 | 21699 | Material – Non-Skid, 8” Wide Length | AR(2) |
| 9 | 21699 | 21699 | 21699 | Material – Non-Skid, 8” Wide Length | AR |
| 10 | 20693 | 36425 | 36425 | Washer – Flat 3/8 | AR |
| 11 | 20712 | 36420 | 36420 | Washer – Lock 3/8 | AR |
| 12 | 20644 | 36414 | 36414 | Nut – Hex 3/8 | AR |
| 13 | 20318 | 36408 | 36408 | Bolt – Carriage 3/8 x 1 | AR |




**WARNING** Guards are intended to reduce hazard of entanglement with machinery and injury. All guards must be installed per this drawing before spreader is put into operation.

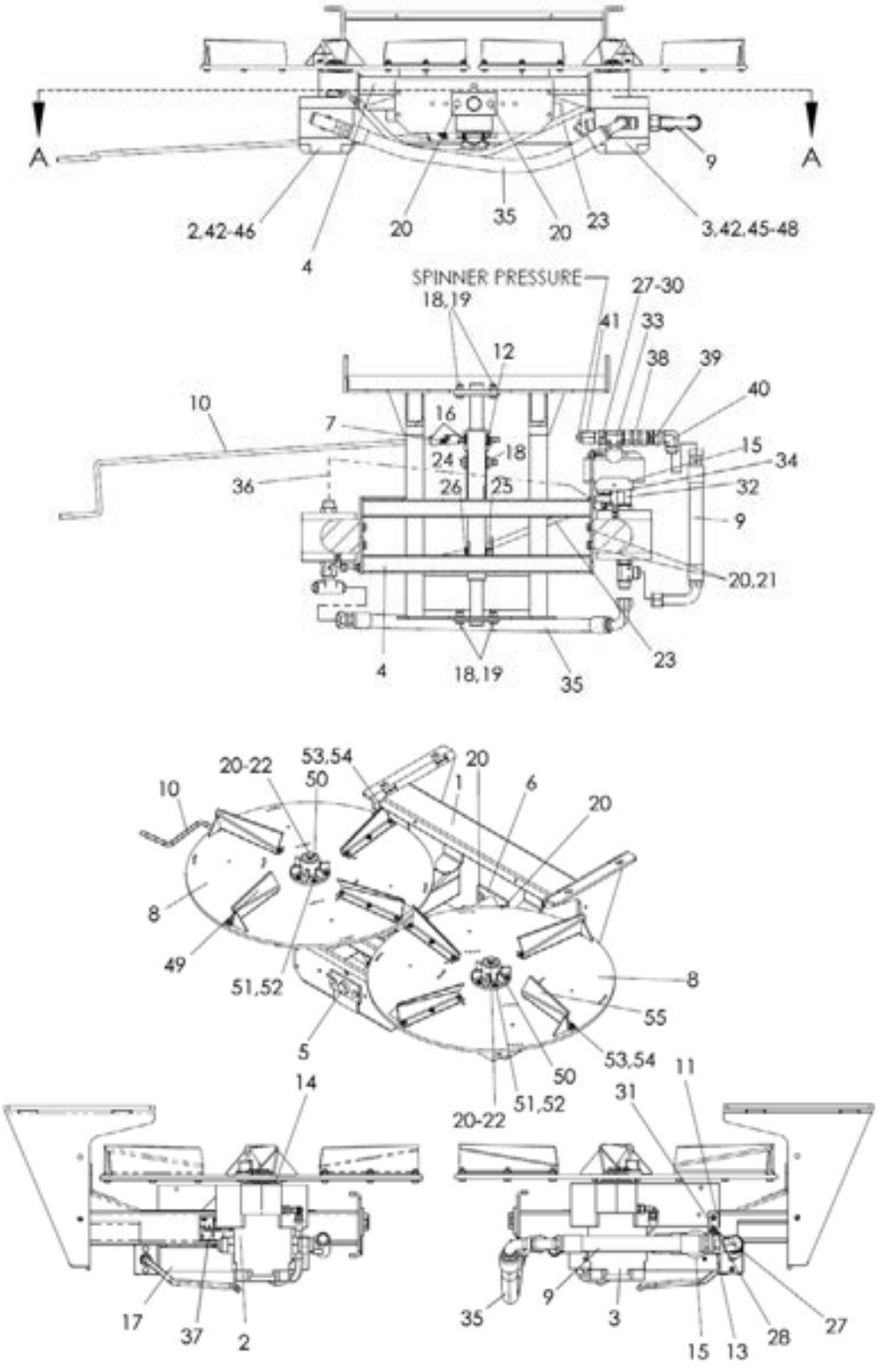
| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 305309 | Divider – Wldmt w/Guard 34” | 1 |
| 2 | 304913 | Guard – Wldmt 30” Spinner 304 | 1 |
| 3 | 305320 | Shield – Wldmt RH 304 | 1 |
| 4 | 305321 | Shield – Wldmt LH 304 | 1 |
| 5 | 87068 | Bracket – Shield 304 | 2 |
| 6 | 305040 | Bar – Stiffener Lower 304 | 2 |
| 7 | 36398 | Cap Screw – 3/8 x 1 SS | 22 |
| 8 | 36425 | Washer – Flat 3/8 SS | 20 |
| 9 | 36420 | Washer – Lock 3/8 SS | 22 |
| 10 | 36414 | Nut – Hex 3/8 SS | 20 |
| 11 | *39640 | Bolt – Carriage 1/2-13NC x 2 SS | 4 |
| 12 | *36426 | Washer – Flat 1/2 SS | 4 |
| 13 | *36422 | Washer – Lock 1/2 SS | 4 |
| 14 | *36416 | Nut – Hex 1/2-13NC SS | 4 |

* - Not Shown - used to mount spinner




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 97310 | Sensor – Kit Spinner, Includes 1–8 | |
| 1 | 89011 | Sensor – Assy | 1 |
| 2 | 89009 | Cable – Sensor Extension | 1 |
| 3 | 86672 | Bracket | 1 |
| 4 | 42448 | Cap Screw – 1/4 x 1-1/2 SS | 2 |
| 5 | 36393 | Cap Screw – 1/4 x 3/4 SS | 2 |
| 6 | 36423 | Washer – Flat 1/4 SS | 2 |
| 7 | 36418 | Washer – Lock 1/4 SS | 4 |
| 8 | 36412 | Nut – Hex 1/4 SS | 4 |
| 9 | * 88260 | Control – Box Spinner | 1 |

* - Not Shown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2,42-46
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SPINNER PRESSURE
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27-30
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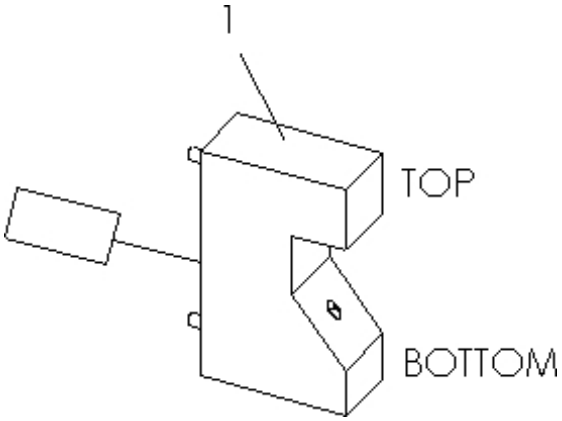
| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 304895 | 34” Fan Assy, Includes 1-59 | 1 |
| | 304899 | 30” Disc – LH Assy, Includes Items 8, 49-54 | 1 |
| | 304900 | 30” Disc – RH Assy, Includes Items 8, 50-55 | 1 |
| 1 | 304911 | Plate – Wldmt Back | 1 |
| 2 | 305757 | Motor – LH Style II Assy, Includes 42-46 | 1 |
| 3 | 307576 | Motor - RH Style II Assy, Includes 42,45-48 | 1 |
| 4 | 304897 | Mount – Wldmt 30” Disc | 1 |
| 5 | 304898 | Shaft – Wldmt 30” Disc 304 | 1 |
| 6 | 87023 | Plate – Mounting Shaft | 1 |
| 7 | 85002 | U-Joint | 1 |
| 8 | 304894 | Disc – LH & RH Spinner 30” | 2 |
| 9 | 56103-X1 | Hose - Assy | 1 |
| 10 | 14382 | Handle – Jack Feedgate | 1 |
| 11 | 87025 | Angle – Mounting Valve | 1 |
| 12 | 6072 | Zerk – Grease | 2 |
| 13 | 76825 | Hinge - Pipe | 1 |
| 14 | 305571 | Washer – Rubber | 2 |
| 15 | 71781 | Valve – 50/50 Flow Divider | 1 |
| 16 | 20918 | Pin – Roll | 2 |
| 17 | 87170 | Jack – Coated Assy | 1 |
| 18 | 39016 | Nut – Lock 1/2 | 5 |
| 19 | 36426 | Washer – Flat 1/2 | 4 |
| 20 | 36402 | Cap Screw 1/2-13 NC x 1-1/4 | 14 |
| 21 | 36422 | Washer – Lock 1/2 | 10 |
| 22 | 56397 | Washer – Flat | 2 |
| 23 | 304907 | Hose - Assy | 1 |
| 24 | 80798 | Cap Screw – 1/2-13 x 3-3/4 | 1 |
| 25 | 36429 | Pin – Hair | 1 |
| 26 | 6547 | Pin – Clevis | 1 |
| 27 | 36412 | Nut – Hex 1/4-20 NC x 1 | 2 |
| 28 | 36418 | Washer – Lock 1/4 SS | 2 |
| 29 | 36423 | Washer – Flat 1/4 SS | 1 |
| 30 | 36395 | Cap Screw – 1/4-20 NC x 1 SS | 1 |
| 31 | 41669 | Cap Screw – 1/4-20 NC 1-3/4 | 1 |
| 32 | 34810 | Adapter | 1 |
| 33 | 34750 | Fitting – 16-16-16 070429 | 1 |
| 34 | 29840 | Adapter – Elbow | 1 |
| 35 | 304905 | Hose - Assy | 1 |

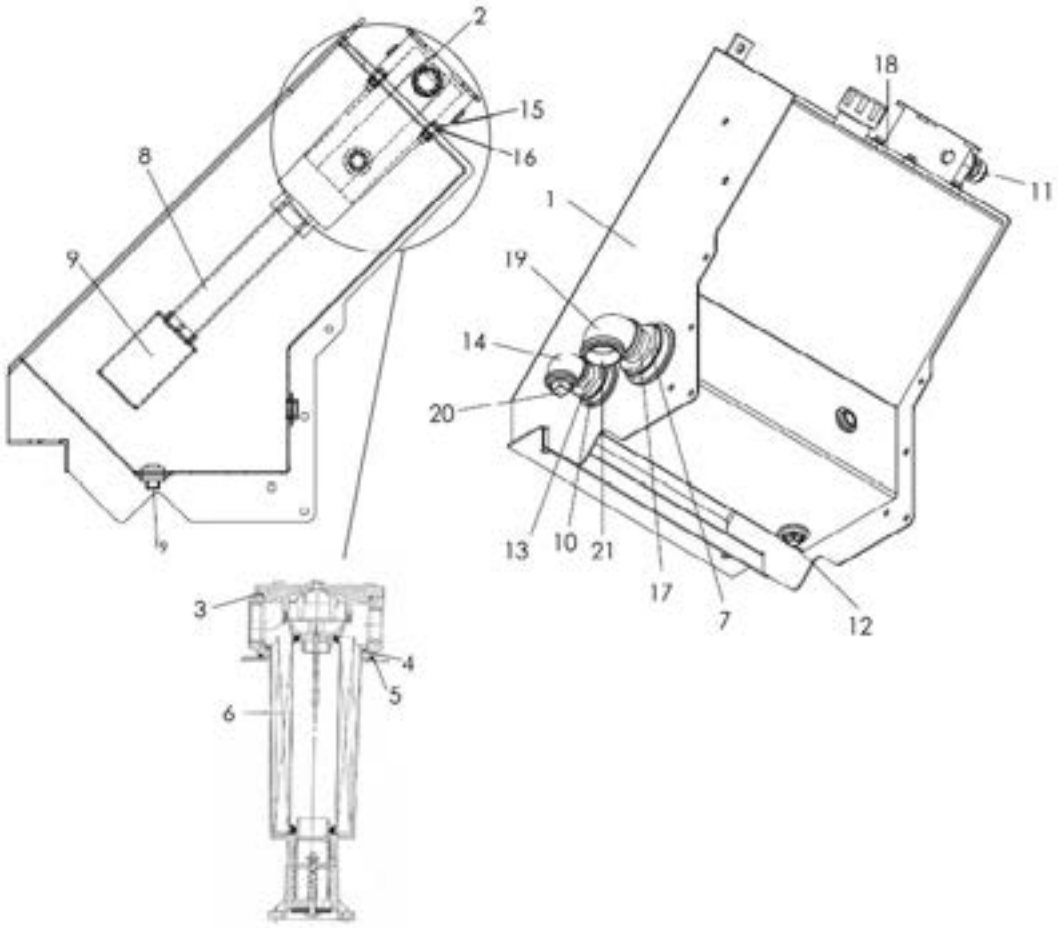
| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 36 | 304906 | Hose - Assy | 1 |
| 37 | 87110 | Decal - Scale | 1 |
| 38 | 302449 | Fitting - 16-16 S1040-38 Non Standard | 1 |
| 39 | 302160-AB | Valve – Check 1” | 1 |
| 40 | 29807 | Fitting – 16-16 070221 | 1 |
| 41 | 29806 | Fitting – 16-16 070321 | 1 |
| 42 | 305945 | Motor - Spinner | 2 |
| 43 | 29836 | Adapter - Tee Branch | 1 |
| 44 | 29825 | Tee - Swivel Nut Branch | 1 |
| 45 | 29803 | Adapter | 3 |
| 46 | 34763 | Adapter - Pipe | 2 |
| 47 | 34816 | Elbow – Hydraulic Fitting | 1 |
| 48 | 305758 | Fitting – 16-16-16 070428 | 1 |
| 49 | 307265 | Fin - LH Wldmt | 4 |
| 50 | 10877 | Hub - Wldmt | 2 |
| 51 | 20005 | Cap Screw – 1/4-20 x 1 | 12 |
| 52 | 20676 | Nut – Lock 1/4-20 | 12 |
| 53 | 20036-X1 | Cap Screw – 5/16-18NC x 1 | 24 |
| 54 | 20677 | Nut – Lock 5/16-18 | 24 |
| 55 | 307266 | Fin – RH Wldmt | 4 |
| 56 | *36940 | 4 Bolt – Carriage 1/2-13NC x 2 SS | 4 |
| 57 | *36426 | 4 Washer – Flat 1/2 SS | 4 |
| 58 | *36422 | 4 Washer – Lock 1/2 SS | 4 |
| 59 | *36416 | Nut – Hex 1/2-13NC SS | 4 |

* - Not Shown - Used to attach spinner to sills.




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 98787-AB | Lead - 18” Bin Level Sensor | AR |
| 2 | *98787-AD | Cable - 27’ Bin Level Sensor | AR |
| 3 | *307130 | Cable - Jumper 102” | AR |
| 4 | *307124 | Mount - Sensor 304 | AR |
| 5 | *36393 | Cap Screw - 1/4-20NC x 3/4 SS | AR |

* - Not Shown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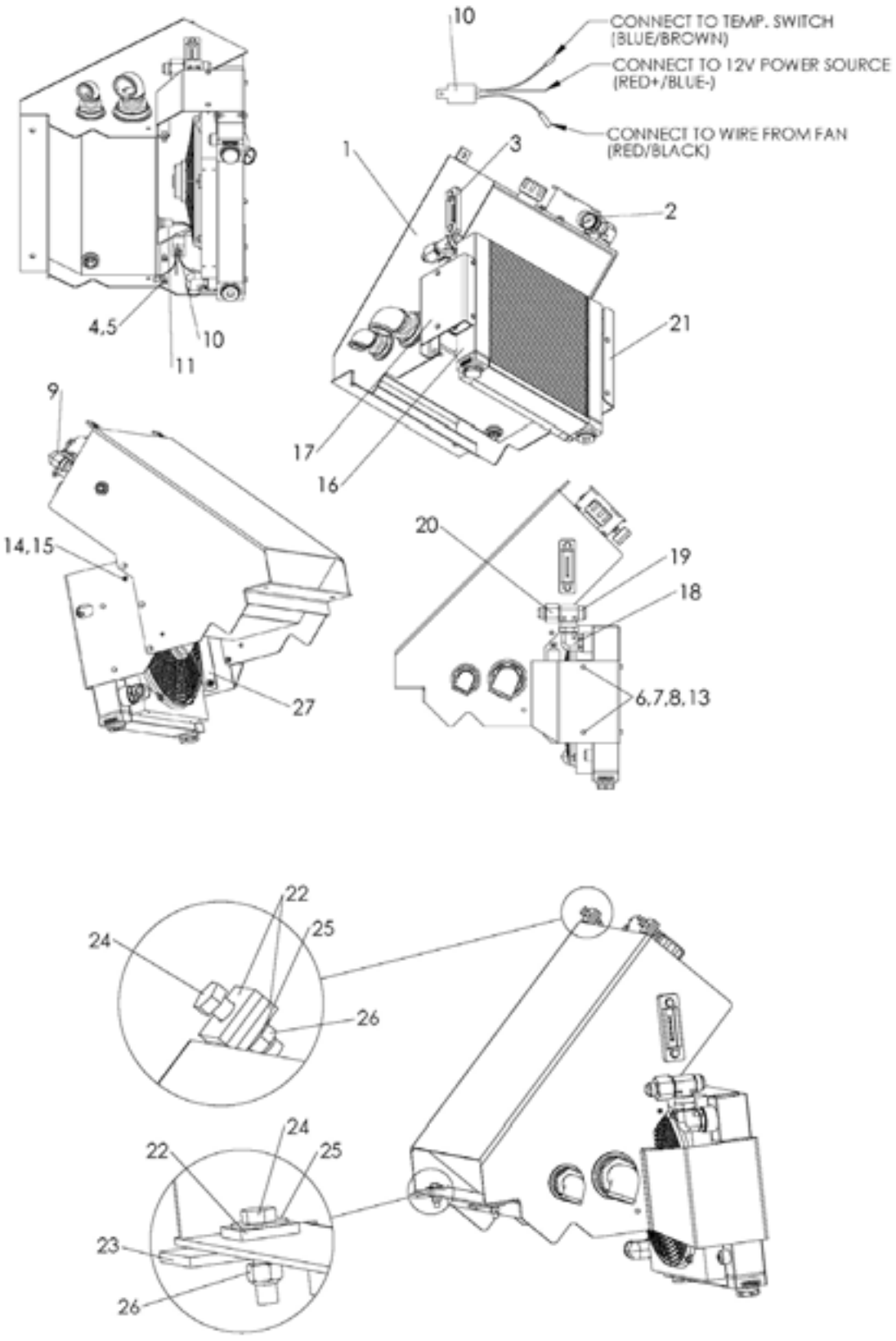
| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 305054 | Hydraulic Tank Assy | |
| 1 | 305050 | Tank – Hydraulic Wldmt | 1 |
| 2 | 88838 | Filter – Return, Includes 3-6 | 1 |
| 3 | 306772 | O-Ring - Cover Filter | 1 |
| 4 | 306773 | O - Ring - Housing Filter | 1 |
| 5 | 306789 | Seal - Filter Assy | 1 |
| 6 | 305066 | Element - Filter | 1 |
| 7 | 305063 | Strainer – 2 NPT | 1 |
| 8 | 305058 | Pipe – 1.5 SCH40 10 | 1 |
| 9 | 305057 | Diffuser – Tank | 1 |
| 10 | 305062 | Strainer – 1-1/4 NPT | 1 |
| 11 | 29768 | Fitting – 20-20 070102 | 1 |
| 12 | 305061 | Plug – Magnetic 1 NPT | 1 |
| 13 | 6028 | Nipple - Close 1-1/4 NPT | 1 |
| 14 | 6011 | Elbow 90° 2 NPT | 1 |
| 15 | 20068 | Cap Screw – 3/8-16 x 1-1/4 | 4 |
| 16 | 20712 | Washer – Lock 3/8 | 4 |
| 17 | 22324 | Nipple - Close 2 NPT STD | 1 |
| 18 | 306186 | Gasket Maker - Silicone | 1 |
| 19 | 23703 | Adapter - Elbow 90° 2 NPT | 1 |
| 20 | 6035 | Plug - Pipe 1-1/4 NPT | 1 |
| 18 | 306301 | Plug - Tapered 2 NPT | 1 |


10
CONNECT TO TEMP. SWITCH (BLUE/BROWN)
CONNECT TO 12V POWER SOURCE (RED+/BLUE-)
CONNECT TO WIRE FROM FAN (RED/BLACK)
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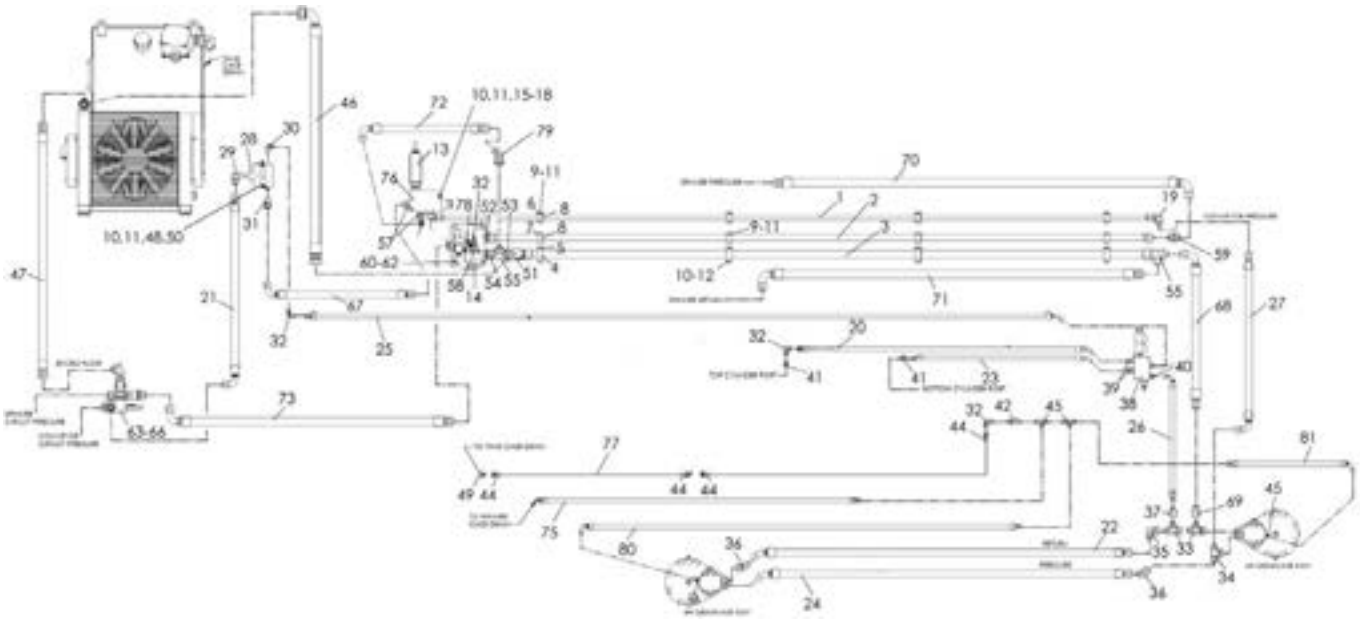
| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 305054 | Hydraulic Tank Assy, see *Reservoir Tank* parts list | 1 |
| 2 | 43534 | Indicator – Service | 1 |
| 3 | 38575 | Gauge – Sight & Temperature | 1 |
| 4 | 36398 | Cap Screw – 3/8-16NC x 1 SS | 5 |
| 5 | 72054 | Nut – Lock 3/8 SS | 5 |
| 6 | 36424 | Washer – Flat 5/16 | 8 |
| 7 | 34580 | Cap Screw – 5/16 x 1 | 8 |
| 8 | 36413 | Nut – Hex 1/3-18NC SS | 8 |
| 9 | 98568 | Fitting – 20-20 070221 | 1 |
| 10 | 96750-X1 | Relay – 12VDC 40A | 1 |
| 11 | 305074 | Switch – Temperature 114° | 1 |
| 12 | *98662 | Hose – 1-1/4 2CB x 48 | 1 |
| 13 | 36419 | Washer – Lock 5/16 SS | 8 |
| 14 | 56258 | Screw – Truss Head 1/4-20 x 1/2 SS | 1 |
| 15 | 42034 | Nut – Lock 1/4-20 SS | 1 |
| 16 | 305767 | Cooler – Assy | 1 |
| | 305767-AA | Core - Cooler | 1 |
| | 305767-AB | Fan - Assy Cooler | 1 |
| | 305767-AC | Housing - Cooler | 1 |
| 17 | 305761 | Bracket – Cooler LH | 1 |
| 18 | 96916 | Fitting – 20-20 070220 | 1 |
| 19 | 56267 | Fitting – 20-20 070433 | 2 |
| 20 | 34819 | Fitting – 20-16 070123 | 1 |
| 21 | 305760 | Bracket – Cooler RH | 1 |
| 22 | 39159 | Belt – Spacer | 6 |
| 23 | 39158 | Belt – Flex Mount | 2 |
| 24 | 36403 | Cap Screw – 1/2-13 x 2 SS | 4 |
| 25 | 36426 | Washer – Flat 1/2 SS | 4 |
| 26 | 39016 | Nut – Lock 1/2-13NC SS | 4 |
| 27 | 306447 | Bracket – Cooler Mount | 2 |
| 28 | *306186 | Gasket Maker – Silicone RTV | 1 |

* - Not Shown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10-12
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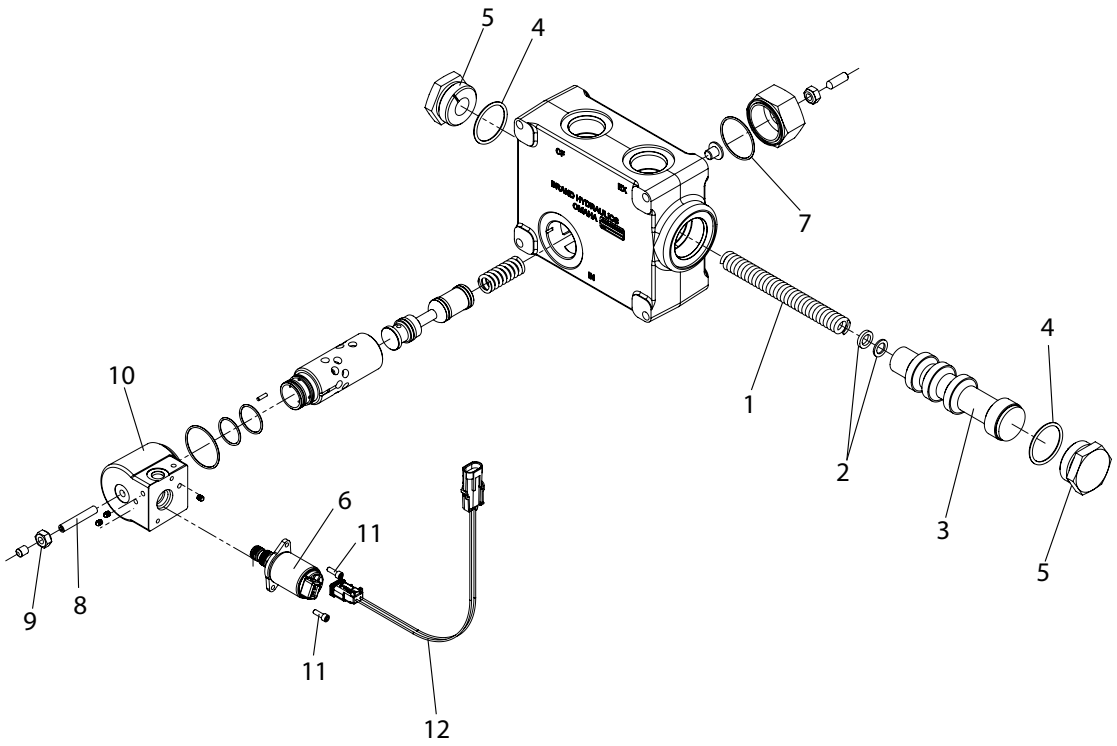
60-62
63-66

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 305504-AB | Tube – Assy 13’ | 1 |
| | 305504-AC | Tube – Assy 14’ | 1 |
| | 305504-AD | Tube – Assy 16’ | 1 |
| | 305504-AE | Tube – Assy 18’ | 1 |
| | 305504-AF | Tube – Assy 21’ | 1 |
| 2 | 98113 | Tube – Assy 13’ | 1 |
| | 98115 | Tube – Assy 14’ | 1 |
| | 98119 | Tube – Assy 16’ | 1 |
| | 98121-X3 | Tube – Assy 18’ | 1 |
| | 98121-X5 | Tube – Assy 21’ | 1 |
| 3 | 305502-AB | Tube – Assy 13’ | 1 |
| | 305502-AC | Tube – Assy 14’ | 1 |
| | 305502-AD | Tube – Assy 16’ | 1 |
| | 305502-AE | Tube – Assy 18’ | 1 |
| | 305502-AF | Tube – Assy 21’ | 1 |
| 4 | 96925 | Plate – Top 1-1/4 Tube | AR |
| 5 | 96926 | Clamp – Pair 1-1/4 Tube | AR |
| 6 | 98649 | Clamp - Pair 3/4 Tube | AR |
| 7 | 86557 | Clamp – Pair 1 Tube | AR |
| 8 | 86556 | Plate – Top 1 Tube | AR |
| 9 | 34865 | Cap Screw – 1/4 x 2-1/4 | AR |
| 10 | 36412 | Nut – Hex 1/4-20NC x 2-1/4 | AR |
| 11 | 36418 | Washer – Lock 1/4 SS | AR |
| 12 | 36396 | Cap Screw – 1/4 x 3 SS | AR |
| | 306278 | Valve - Assy Control 25 GPM SFP, Includes 13 & 14 | |
| 13 | 306279 | Valve – 25 GPM Raven II | 1 |
| 14 | 38576-X4 | Valve – PWM | 1 |
| | *38576-AH | Valve - Kit Seal | 1 |
| 15 | 302097 | Washer – Step | 2 |
| 16 | 302098 | Washer – Step | 2 |
| 17 | 56396 | Cap Screw – 1/4-20 x 3-1/4 | 2 |
| 18 | 36423 | Washer – Flat 1/4 SS | 4 |
| 19 | 29785 | Fitting – 12-12 070201 | 1 |
| 20 | 305521 | Hose – Assy 3/8 x 48-3/4” 100R1 | 1 |
| 21 | 305522 | Hose - Assy 3/4 x 36” 100R12 | 1 |
| 22 | 305523 | Hose - Assy 3/4 x 72” | 1 |
| 23 | 304907-X1 | Hose - Assy 3/8 x 30” 100R1 | 1 |
| 24 | 305752 | Hose – Assy 3/4 x 71-1/2 100R12 | 1 |

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 25 | 305526 | Hose – Assy 13’ | 1 |
| | 305527 | Hose – Assy 14’ | 1 |
| | 305528 | Hose – Assy 16’ | 1 |
| | 305529 | Hose – Assy 18’ | 1 |
| | 305530 | Hose – Assy 21’ | 1 |
| 26 | 305531 | Hose – Assy 3/8 x 24 100R1 | 1 |
| 27 | 98710-X2 | Hose – Assy 3/4 x 33-1/2 100R12 | 1 |
| 28 | 30744 | Valve – Flow Control | 1 |
| 29 | 29764 | Fitting – 12 070202 | 1 |
| 30 | 34779 | Fitting – 6-6 070202 | 1 |
| 31 | 29752 | Fitting – 12-12 070102 | 1 |
| 32 | 34816 | Fitting – 6-6 070221 | 2 |
| 33 | 29781 | Fitting – 12-12-12 070432 | 2 |
| 34 | 29809 | Fitting – 12-12-12 070433 | 1 |
| 35 | 34709 | Fitting – 12-12 070221 | 2 |
| 36 | 29782 | Fitting – 12-12 070321 | 2 |
| 37 | 56407 | Fitting 12-6 070123 | 1 |
| 38 | 305532 | Valve – Directional/Relief | 1 |
| 39 | 305520 | Fitting – 6-6 S1040-58 Non Standard | 2 |
| 40 | 29824 | Fitting – 6-6 070120 | 3 |
| 41 | 84246 | Fitting – 6-8 070120 | 2 |
| 42 | 305514 | Fitting - 6-8 070120 | 1 |
| 43 | 98724 | Fitting – 6-6-6 070432 | 2 |
| 44 | 34761 | Fitting – Socketless | 4 |
| 45 | 34757 | Fitting – 6-4 070120 | 2 |
| 46 | 98662-X1 | Hose – 1-1/4 2CB x 73 | 1 |
| 47 | 82377-X2 | Hose – 1 x 48-5/8 2CB Return | 1 |
| 48 | 34501 | Cap Screw – 1/4-20NC x 2-1/2 SS | 2 |
| 49 | 29766 | Fitting – 6-6 070102 | 1 |
| 50 | 36414 | Nut – Hex 3/8 | 2 |
| 51 | 98568 | Fitting – 20-20 070221 | 1 |
| 52 | 29803 | Fitting – 16-16 070120 | 2 |
| 53 | 96909 | Tee – Run | 1 |
| 54 | 34810 | Fitting – 16-16 S1040-30 Non Standard | 1 |
| 55 | 96912 | Tee – Union | 2 |
| 56 | 29847 | Fitting – 12-12 070220 | 1 |
| 57 | 29789 | Fitting – 12-12 07120 | 2 |
| 58 | 29825 | Fitting – 6-6-6 070433 | 1 |

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 59 | 34719 | Fitting – 16-16 070101 | 1 |
| 60 | 42794 | Cap Screw – 5/16 x 3-3/4 SS | 1 |
| 61 | 36413 | Nut – Hex 5/16-18 | 4 |
| 62 | 36419 | Washer – Lock 5/16 | 4 |
| | 305503 | Valve – Assy Relief 34100 PSI, Includes 63-66 | 4 |
| 63 | 98705 | Valve – Relief Soft Start | 1 |
| 64 | 34810 | Fitting – 16-16 S1040-30 Non Standard | 1 |
| 65 | 29835 | Fitting 12-16 070120 | 1 |
| 66 | 29840 | Fitting – 16-16 070220 | 1 |
| 67 | 98710 | Hose – 3/4 100R12 x 28 Assy | 1 |
| 68 | 98665 | Hose – 1 2CB x 29 Return | 1 |
| 69 | 34712 | Fitting – 12-16 070123 | 1 |
| 70 | 56441 | Hose Assy 1 x 86 100R12 | 1 |
| 71 | 95958 | Hose Assy 1 x 72.7 100R2 | 1 |
| 72 | 98669-X2 | Hose Assy 3/4 x 24 2CB Return | 1 |
| 73 | 305524 | Hose Assy 1x 50 100R12 | 1 |
| 74 | *96906 | Sleeve – Abrasive | 4 |
| 75 | 96338-X1 | Hose – Assy 3/8 x 62” 100R1 | 1 |
| 76 | 306274 | Manifold - 5-25 GPM SFP | 1 |
| 77 | 34195 | Hose - Drain Line | AR |
| 78 | 34757 | Fitting - 6-4 070120 | 1 |
| 79 | 29806 | Fitting – 16-16 070321 | 1 |
| 80 | 97315 | Hose - Assy 3/8 x 84” 100R1 | 1 |
| 81 | 305531 | Hose - Assy 3/8 x 24” 100R1 | 1 |
| 82 | *307399 | Pigtail - 3-pin MetriPack to Flying Lead (optional) | 1 |

AR - As Required

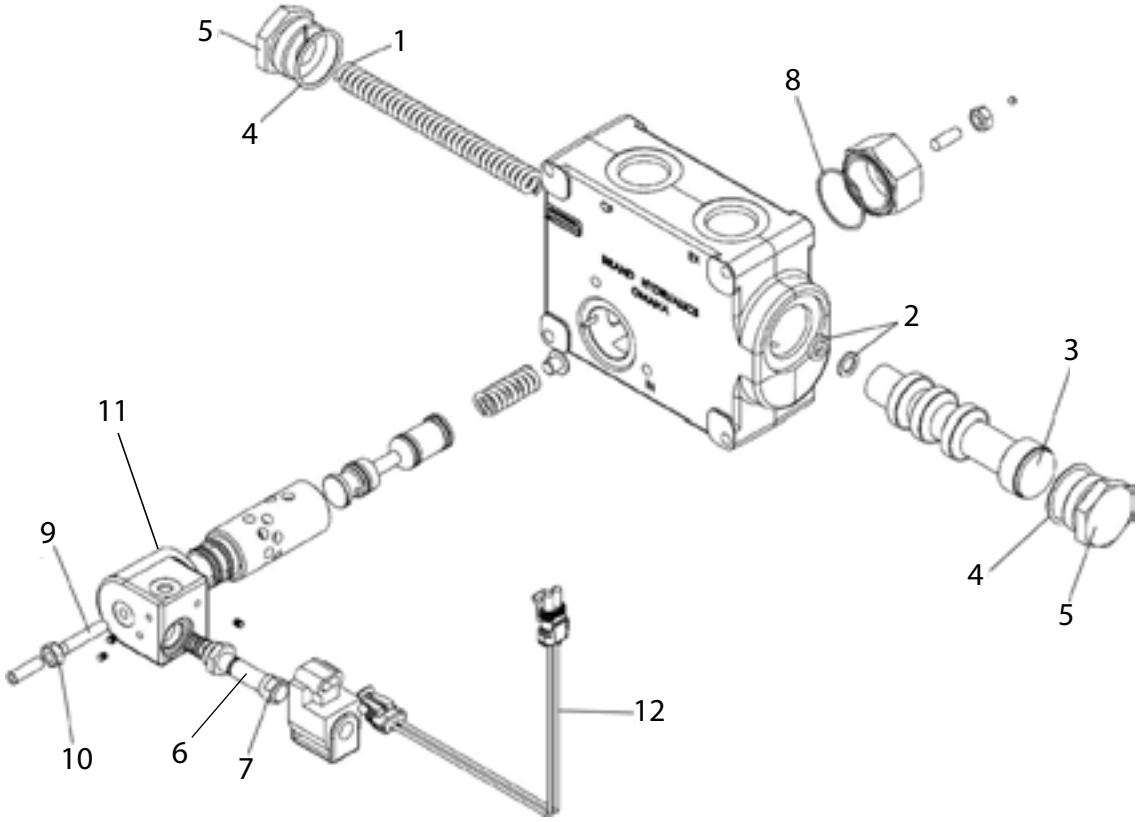



| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 38576-X4 | Valve - Flow Control Electric Actuated | 1 |
| 1 | 53960 | Spring | 1 |
| 2 | 90696 | Shim | 2 |
| 3 | 90697 | Spool | 1 |
| 4 | 90698 | O-Ring | 1 |
| 5 | 90699 | Plug | 2 |
| 6 | 38576-AA | Cartridge | 1 |
| 7 | 38576-AC | O-Ring | 1 |
| 8 | 38576-AD | Screw - Set | 1 |
| 9 | 38576-AE | Nut - Jam | 1 |
| 10 | 38576-BC | Cartridge Valve Body | 1 |
| 11 | 38576-BD | Screw - SHCS 8-32 x .5 | 2 |
| 12 | 38576-AI | Cable Assy | 1 |
| 13 | *38576-AH | Valve - Kit Seal | 1 |

* - Not Shown

PARTS LIST

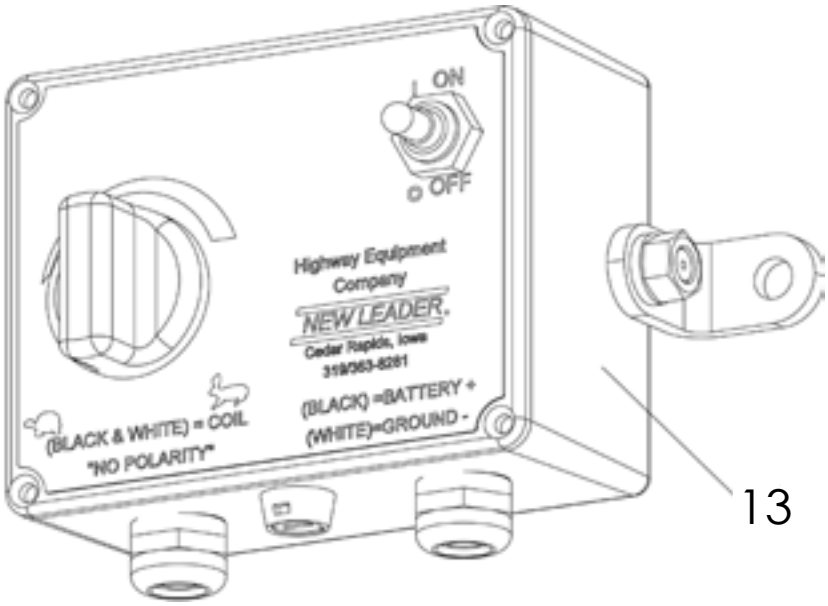
# SPINNER CONTROL VALVE - STYLE B




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 38576-X4 | Valve - Flow Control Electric Actuated | 1 |
| 1 | 53960 | Spring | 1 |
| 2 | 90696 | Shim | 2 |
| 3 | 90697 | Spool | 1 |
| 4 | 90698 | O-Ring | 1 |
| 5 | 90699 | Plug | 2 |
| 6 | 38576-AA | Cartridge | 1 |
| 7 | 38576-AG | Nut - Cartridge | 1 |
| 8 | 38576-AC | O-Ring | 1 |
| 9 | 38576-AD | Screw - Set | 1 |
| 10 | 38576-AE | Nut - Jam | 1 |
| 11 | 38576-AF | Cartridge Valve Body | 1 |
| 12 | 38576-AI | Cable Assy | 1 |
| 13 | *38576-AH | Valve - Kit Seal | 1 |
| 14 | **38576-BA | Kit - Pilot Conversion | AR |

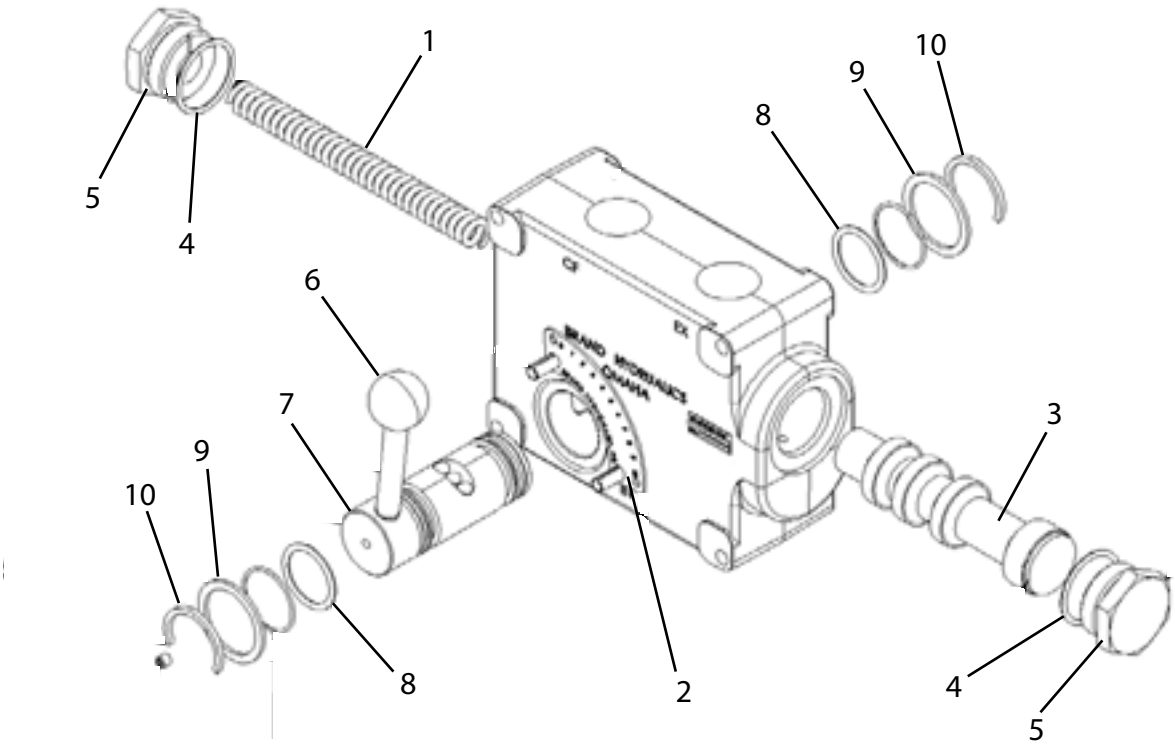
* - Not Shown AR - As Required

** - Use kit to convert existing Style B valve to Style A.

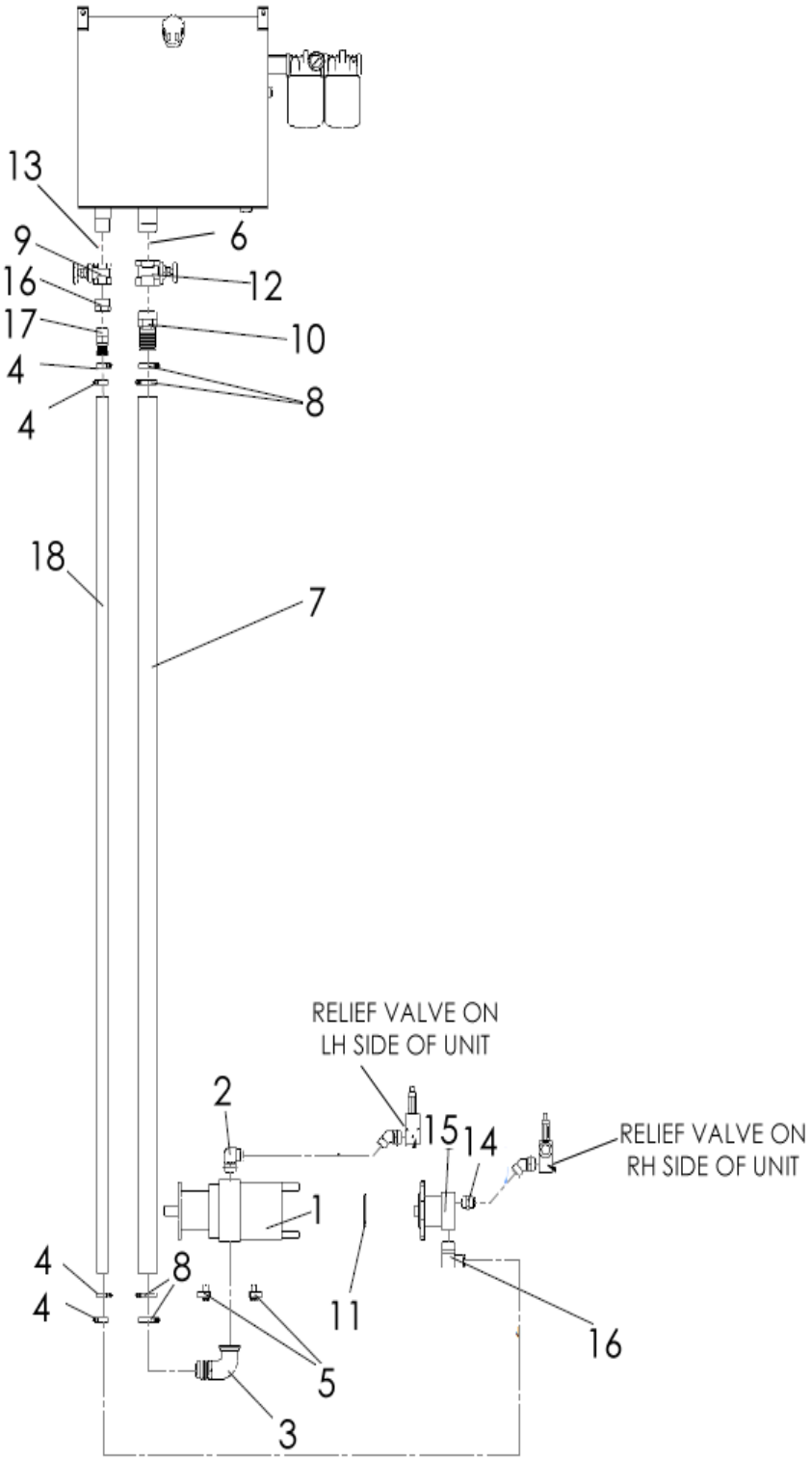



| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 13 | 88260 | Control Box - w/ 25’ Cable | 1 |

* - Not Shown

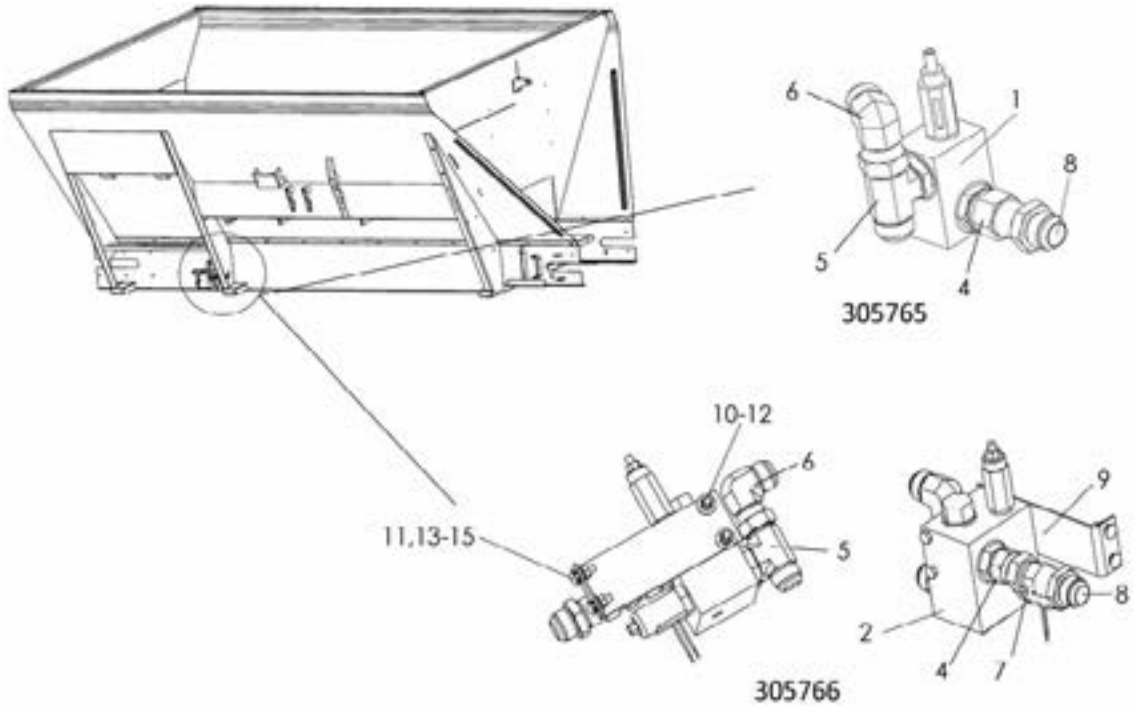



| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 38576 | Valve - Flow Control | 1 |
| 1 | 53960 | Spring | 1 |
| 2 | 43116 | Scale | |
| 3 | 90697 | Spool | 1 |
| 4 | 90698 | O-Ring | 1 |
| 5 | 90699 | Plug | 2 |
| 6 | 53961 | Handle - Spool | 1 |
| | 45950 | Knob - Handle | 1 |
| 7 | 53962 | Spool - Rotary | 1 |
| 8 | 29887 | O-Ring | 2 |
| 9 | 90696 | Shim | 2 |
| 10 | 53963 | Ring - Snap | 2 |



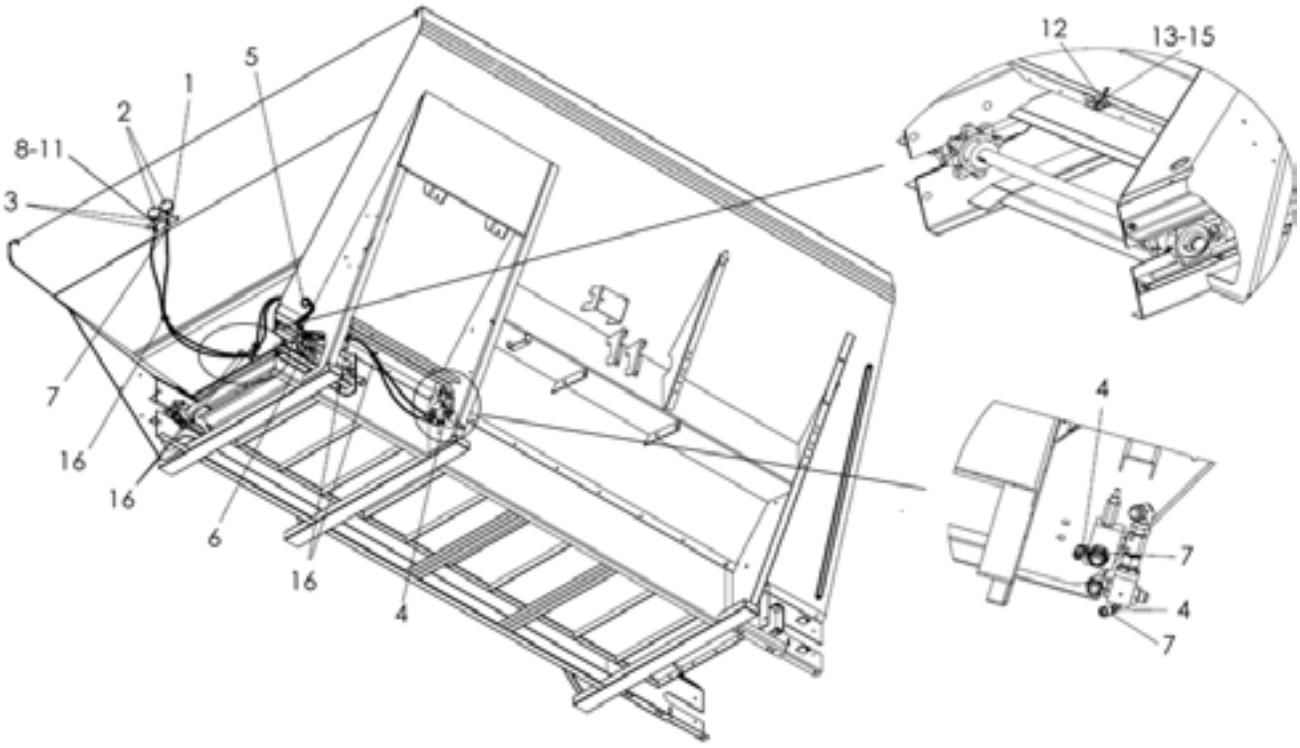

**Tandem Pump Assembly Shown**

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 304428 | Pump - 3.19 CID | 1 |
| 2 | 29840 | Fitting- Elbow 90° | 1 |
| 3 | 34806 | Fitting- 32-32 12151-3-E90S-L | 1 |
| 4 | 6335 | Clamp - Hose | 4 |
| 5 | 41015 | Kit - Flange Split | 1 |
| 6 | 22324 | Nipple - 2” NPT | 1 |
| 7 | 32401-108 | Hose - Suction 2” 100R4 x 108” | 1 |
| 8 | 22380 | Clamp - Hose | 4 |
| 9 | 305059 | Valve – Ball 2” NPT | 1 |
| 10 | 29811 | Fitting - Hose End 2NPT x 2 Hose | 2 |
| 11 | 300669 | O-Ring - 4” ID | 1 |
| 12 | 305060 | Valve - Ball 2” NPT | 1 |
| 13 | 6028 | Nipple - 1.25” NPT | 1 |
| 14 | 29789 | Fitting - 12-12 070120 | 1 |
| 15 | 304426 | Pump - 2.17 CID | 1 |
| 16 | 304427 | Fitting - 20-20 430260 | 1 |
| 17 | 16582 | Fitting - Hose Barb | 1 |
| 18 | 23184-108 | Hose - Suction 1-1/4 100R4 x 108 | 1 |

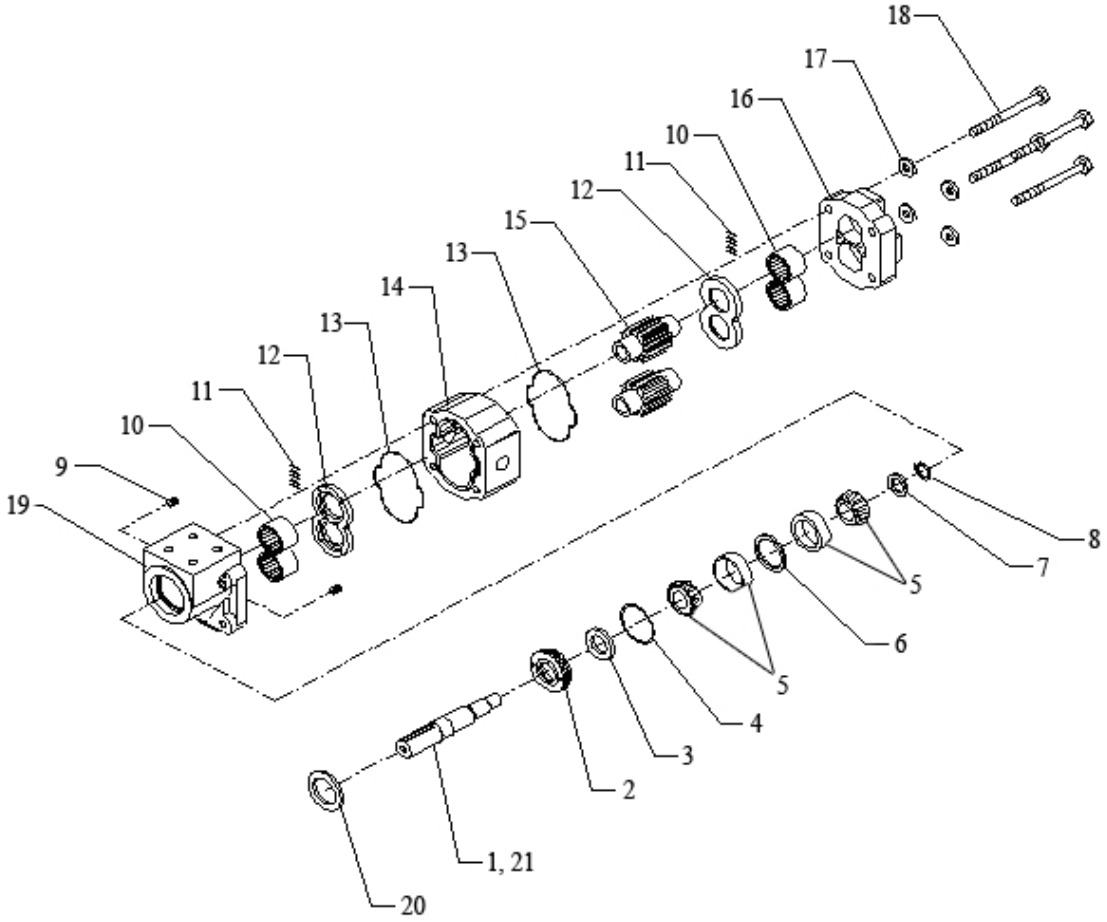



| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 305763 | Valve - Assy Relief, Includes 1,3-6 | |
| | 305764 | Valve - Assy Relief/Unloader, Includes 2,3,5-7 | |
| 1 | 98109 | Valve - Relief Soft Start | 1 |
| 2 | 56291 | Valve - Relief/Unloader 3100 PSI | 1 |
| 3 | *29803 | Fitting - 16-16 070120 | 2 |
| 4 | 34810 | Fitting - 16-16 S1040-30 Non Standard | 1 |
| 5 | 34750 | Fitting - 16-16-16 070429 | 2 |
| 6 | 29807 | Fitting - 16-16 070221 | 2 |
| 7 | 302449 | Fitting - Union | 1 |
| 8 | 34747 | Fitting - 16-16 070601 | 2 |
| 9 | 305035 | Bracket - Unloader Valve | 1 |
| 10 | 84599 | Cap Screw - 5/16-18 x 5 SS | 2 |
| 11 | 36424 | Washer - Flat 5/16 | 4 |
| 12 | 42221 | Nut - Lock 5/16-18 SS | 2 |
| 13 | 42639 | Bolt - Carriage 5/16 x 1 SS | 2 |
| 14 | 36413 | Nut - Hex 5/16-18 SS | 2 |
| 15 | 36419 | Washer - Lock 5/16 SS | 2 |

# PRESSURE GAUGE KIT




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 304948 | Bracket - Wldmt Gauge | 1 |
| 2 | 76044 | Gauge - Hyd. 5000 PSI | 2 |
| 3 | 29765 | Fitting - 4-4 070102 | 2 |
| 4 | 29795 | Fitting - 4-4- 070220 | 2 |
| 5 | 34129 | Grommet | 1 |
| 6 | 89051 | Clamp | 1 |
| 7 | 306796 | Hose - 1/4” dia 100$2 x 120” | 2 |
| 8 | 34580 | Cap Screw - 5/16-18 x 1 SS | 2 |
| 9 | 36424 | Washer - Flat 5/16 SS | 2 |
| 10 | 36419 | Washer - Lock 5/16 SS | 2 |
| 11 | 36413 | Nut - Hex 5/16-18 SS | 2 |
| 12 | 26562 | Clamp - Tubing | 1 |
| 13 | 36393 | Cap Screw - 1/4-20 x 3/4 SS | 1 |
| 14 | 36418 | Washer - Lock 1/4 SS | 1 |
| 15 | 36412 | Nut - Hex 1/4-20 SS | 1 |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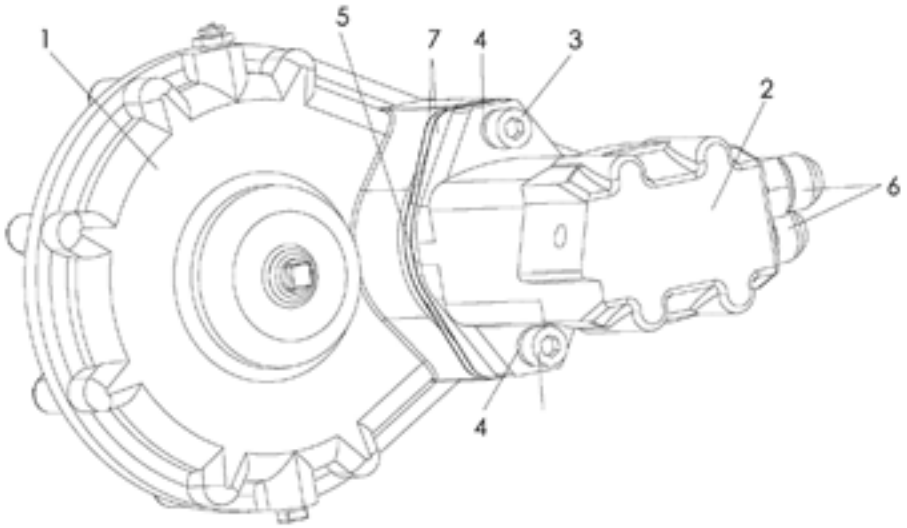
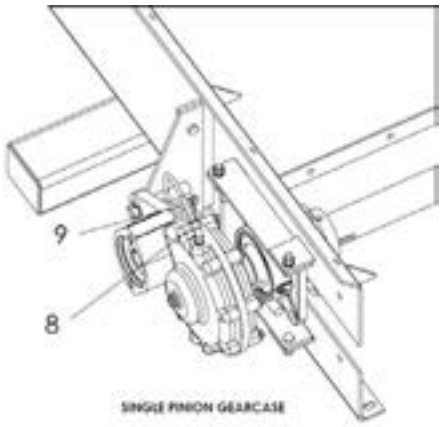
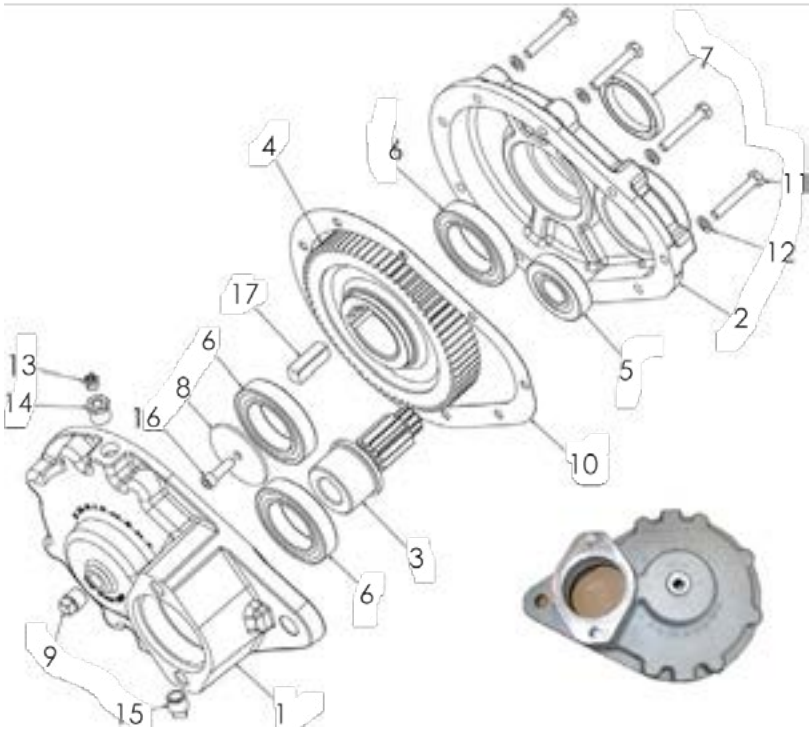
| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 305945 | Motor - Hydraulic | |
| | 306093 | Shaft – Assy Output, Includes: 1-8,20,21 | |
| | 72548 | Kit - Seal, Includes 3,4 & 20 | |
| | 305824 | Retainer – Assy w/Seals, Includes 1,3-5 | |
| 1 | 306088 | Shaft – Output | 1 |
| 2 | 306091 | Ring – Retainer | 1 |
| 3 | 71980 | Seal | 1 |
| 4 | 28494 | O-Ring | 1 |
| 5 | 28491 | Bearing – Tapered Roller Assy | 2 |
| 6 | 28454 | Spacer | 1 |
| 7 | 306092 | Washer – Lock | 1 |
| 8 | 306089 | Nut – Lock | 1 |
| 9 | 58797 | Plug | 1 |
| 10 | 23806 | Bearing | 4 |
| 11 | 23819 | Seals - Pocket (Makes 12 Seals) | 1 |
| 12 | 23818 | Plate | 2 |
| 13 | 23820 | Gasket | 2 |
| 14 | 34665 | Housing | 1 |
| 15 | 23826 | Gear Set | 1 |
| 16 | 23812 | Cover - Port End | 1 |
| 17 | NA | Washer | 4 |
| 18 | 20192 | Cap Screw | 4 |
| 19 | 306087 | Cover - Shaft End | 1 |
| 20 | 33809 | Seal - Excluder | 1 |
| 21 | 24458 | Key | 1 |
| 22 | *306090 | Sleeve – Speedi | 1 |
| | * 30723 | Tool – Wrench, Spinner | |
| | * 24536 | Tool – Seal Driver | |
| | * 23940 | Tool – Seal Sleeve | |

* - Not Shown

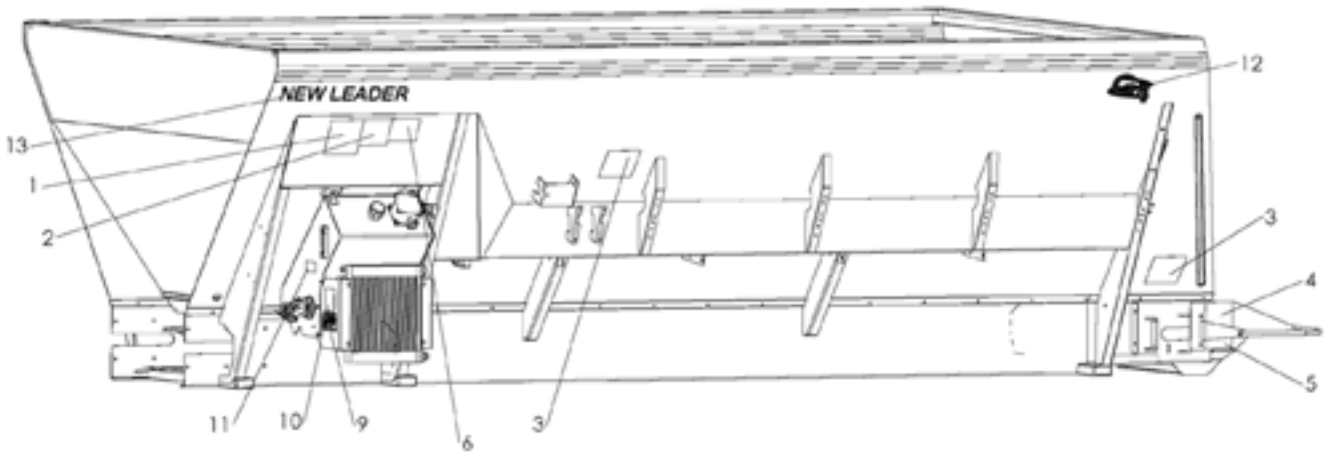


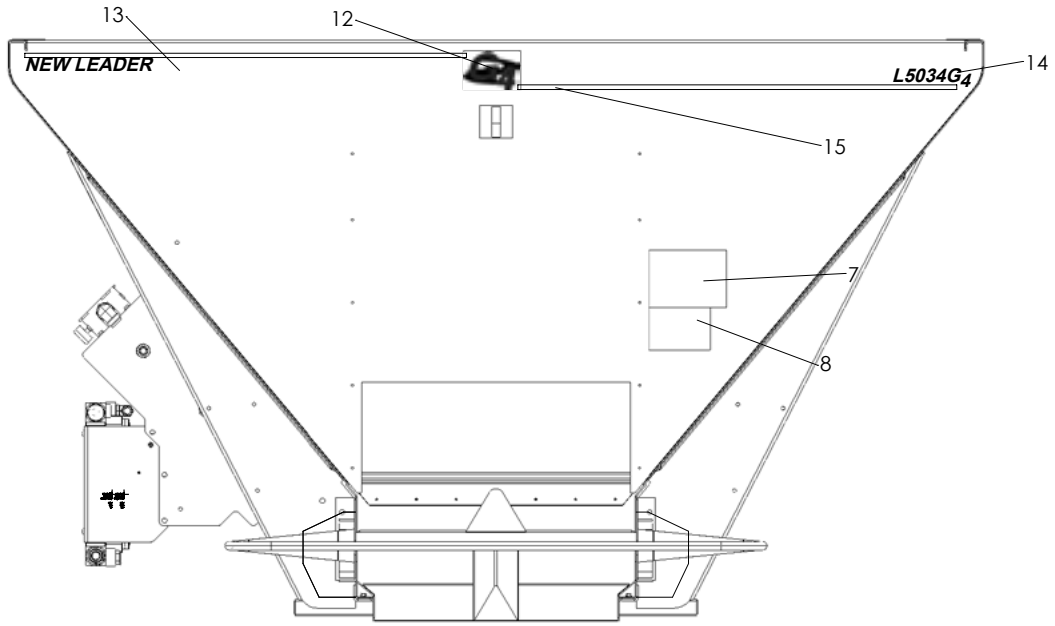

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 305578 | Gearcase Assy - 9.6 CID 2000 Series | 2 |
| | 303837 | Gearcase Assy – 8.0 CID 2000 Series | 2 |
| 1 | 36671 | Gearcase 6.1 | 1 |
| 2 | 303838 | Motor – Hydraulic 2000 Series 8.0 CID | 1 |
| | 56270 | Motor – Hydraulic 2000 Series 9.6 CID | 1 |
| 3 | 305098 | Cap Screw – 1/2-13 x 1-3/4 | 2 |
| 4 | 30227 | Washer – Lock Socket HD 1/2 | 2 |
| 5 | 34650 | Spacer – Gearcase Motor | 1 |
| 6 | 29753 | Fitting – 12-10 07120 | 2 |
| 7 | 74524 | Gasket | 2 |
| 8 | 306891 | Fitting - 4-2 630202K | 1 |
| 9 | 9005-0-7761 | Tubing - 1/4 OD Air Brake Black | 1.5 ft. |




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| | 36671 | Gearcase – Assembly Single Pinion | |
| | 304269-AB | Parts – Service, Includes 1–17 | |
| 1 | 304559 | Housing – Outboard | 1 |
| 2 | 304560 | Housing – Inboard | 1 |
| 3 | 304561 | Gear – Pinion 11 Tooth | 2 |
| 4 | 304562 | Gear – Driven 67 Tooth | 1 |
| 5 | 37007 | Bearing | 2 |
| 6 | 37008 | Bearing | 4 |
| 7 | 37006 | Seal – Oil | 1 |
| 8 | 38979 | Washer – Flat 2-1/2 x 11/32 | 2 |
| 9 | 6031 | Plug – Pipe | 1 |
| 10 | 304563 | Gasket – Housing | 1 |
| 11 | 20040 | Cap Screw – 5/16NC x 2 | 10 |
| 12 | 20711 | Washer – Lock 5/16 | 10 |
| 13 | 2564 | Cap – Breather | 1 |
| 14 | 27465 | Bushing – Pipe 1/8 x 3/8 | 1 |
| 15 | 21490 | Plug – Pipe Magnetic | 1 |
| 16 | 38980 | Screw – Allen Head 5/16-18 x 1 | 1 |
| 17 | 37010 | Key – 1/2 x 1/2 x1-1/2 | 2 |

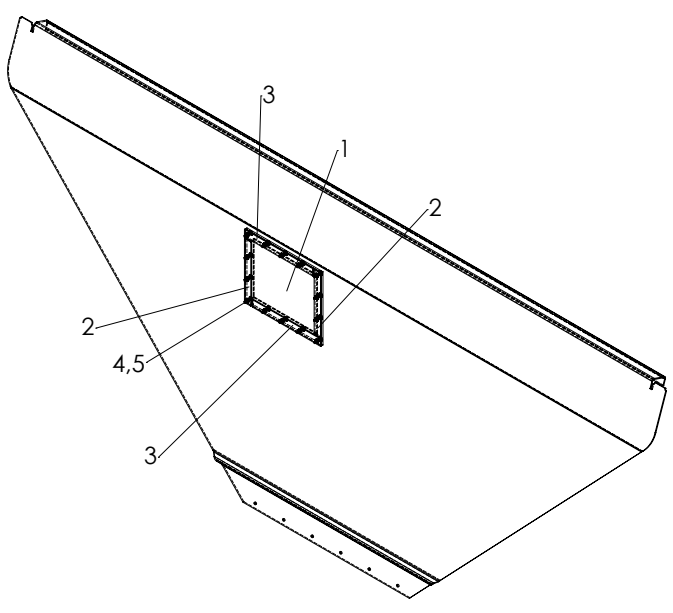

NEW LEADER
12
13
1
2
3
4
5
11
10
9
6
3


12
2
NEW LEADER
13
18
4
5

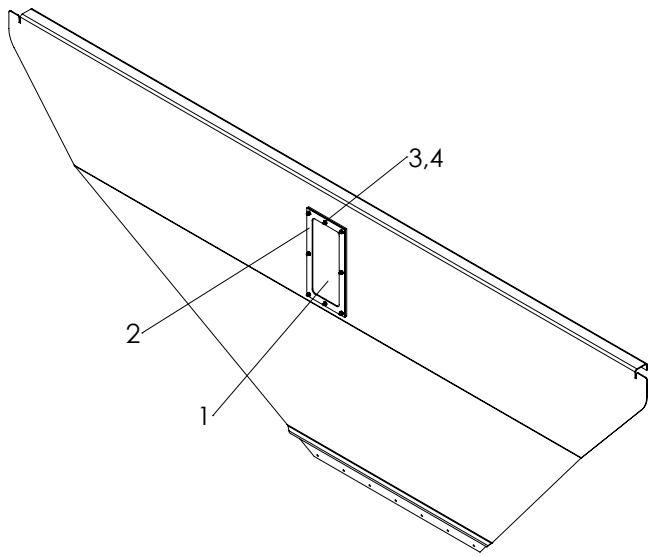

13
12
NEW LEADER
L5034G4
14
15
7
8

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 150034 | Caution - Operation & Maintenance | 1 |
| 2 | 364 | Danger - Moving Part | 2 |
| 3 | 39138 | Warning - High Pressure Fluid | 2 |
| 4 | 55630 | Warning - Falling Hazard | 2 |
| 5 | 55631 | Warning - Moving Part Hazard | 2 |
| 6 | 321 | Caution - Hazardous Material | 1 |
| 7 | 368 | Danger - Flying Material | 1 |
| 8 | 71526 | Notice - Spread Pattern | 1 |
| 9 | 304264 | Notice - Cooler Hyd Oil | 1 |
| 10 | 39378 | Notice - Change Filter Element | 1 |
| 11 | 8664 | Notice - Keep Valve Open | 1 |
| 12 | 87123 | G4 White/Red | 3 |
| | 87122 | G4 - Black/Red | 3 |
| | 87129 | G4 - Black/White | 3 |
| 13 | 87165 | New Leader White | 3 |
| | 87164 | New Leader Black | 3 |
| 14 | 304471 | L5034G4 White | 1 |
| | 304470 | L5034G4 Black | 1 |
| 15 | 87163 | 3/4 Striping White | 9 |
| | 87162 | 3/4 Striping Black | 9 |
| 16 | 21699 | Skid Fabric | AR |
| 17 | 39200 | Warning - Slipping | 1 |
| 18 | 21476 | Important - Conveyor Chain Life | 1 |
| 19 | *87110 | Decal - Scale | 1 |

* - Not Shown




Type I




Type II

**Type I**

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 80831 | Window - Sight 8 x 10 | 1 |
| 2 | 80832-X1 | Bar - Retainer Side 8 x 10 304 | 2 |
| 3 | 80833-X1 | Bar - Retainer Top & Bottom 8 x 10 | 2 |
| 4 | 42033 | Screw - Truss Head 1/4 x 1 SS | 14 |
| 5 | 42034 | Nut - Lock 1/4 SS | 14 |

**Type II**

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 302686 | Window - Sight 5 x 12 | 1 |
| 2 | 305687 | Window - Frame 5 x 12 | 2 |
| 3 | 42033 | Screw - Truss Head 1/4 x 1 SS | 8 |
| 4 | 42034 | Nut - Lock 1/4 SS | 8 |

PARTS LIST